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What's New in Gastro-Enterology*

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IT is difficult to appreciate the rapidity with which new facts in the field of gastro-intestinal disease have been accumulated until one attempts to review the subject in preparation for a presentation such as this. The two most widely discussed subjects, the world-wide epidemic of viral hepatitis and its late consequences,¹⁸ and the effects of section of the vagus nerves on the course of peptic ulcer¹⁶ have been discussed elsewhere during this meeting and will not be considered in this presentation.

STOMACH

A group for the study of methods leading to the earlier diagnosis of carcinoma of the stomach has been formed recently under the direction of the National Institute of Health. Two important contributions already discussed by this group have to do with the high incidence of carcinoma in stomachs showing achlorhydria. The incidence of gastric carcinoma in patients with pernicious anemia, who invariably show an absence of free hydrochloric acid, is, for instance, many times more than the average for persons in the same age groups. Furthermore it has been shown that in all cases of carcinoma studied at one clinic where test meals had been done years earlier on the same patients, achylia had been found on the original test meal in every case. Since atrophic and polypoid gastritis are often associated with achylia, these observations tend to support earlier observations on the relation of such types of gastritis to the later development of gastric carcinoma and to emphasize the importance of continued roentgenologic and gastroscopic observation of such disorders.

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There is an increasing disinclination on the part of gastro-enterologists to treat gastric ulcer by medical means because the margin of error in diagnosis is altogether too great for safety. The obvious inference is that patients who are proved to have achylia or any other supposedly benign intrinsic gastric disorder should undergo periodic roentgenologic study and close observation.

SMALL AND LARGE INTESTINES

Duodenal ulcer.—The increase in the number of cases of duodenal ulcer requiring treatment during the war years has been striking, as has been the frequency of reactivation of latent or inactive ulcers among persons subjected to the strains of war. With the realization of the great frequency of peptic ulcer in adults, interest in new methods of treatment has developed. Among these may be mentioned the use of various detergents, saponins, amino-acid mixtures and certain synthetic resins used as exchange adsorbents for hydrochloric acid.⁶ The first two seem marked for the limbo of such long-forgotten therapeutic agents as gastric mucin and histidine. Enterogastrone is undergoing an extensive clinical trial. This material, which is isolated from the jejunal mucosa of animals, inhibits gastric secretion in both the intact and the vagotomized stomach and prevents the formation of Mann-Williamson ulcer in dogs under experimental conditions which usually induce an ulcer. Some reported clinical experiences with enterogastrone have been encouraging⁶ but the results of the control studies now under way will probably be required before its exact field of usefulness can be established.

So far as vagotomy is concerned, it seems firmly established in two fields; namely, in the treatment of the anastomotic ulcer after a previous resection of the stomach, and as an adjuvant measure to either

gastro-enterostomy or gastric resection. It undoubtedly has other fields of great therapeutic value but undesirable sequelae (gastric retention, diarrhea and cardiospasm) are rather frequent. Certainly its routine use can hardly be recommended for all types of peptic ulcer at the moment until the permanence of the resulting decrease in acidity is determined. Vagotomy possesses one great advantage; it does not mutilate or destroy the continuity of the upper part of the digestive tract; it burns no bridges and does not seriously hinder later attempts at radical surgical cure of ulcer. If the operation achieves, as some now think it may, a permanent corticogastric dissociation,¹⁵ it seems assured of a permanent place in the surgical armamentarium.

Another advance in the field, somewhat indirectly concerned with ulcer therapy, has to do with the management of gastrojejuno-colic fistula. These lesions usually follow perforation of anastomotic ulcers. The long-continued presence of such a fistula is usually productive of an extreme degree of nutritional disturbance and as a result its surgical repair is at best a difficult and hazardous procedure. Recent studies by Renshaw and his associates¹⁷ on animals with experimentally produced fistulas have shown the incorrectness of the old idea that gastric contents by-passed the small bowel and entered directly into the colon. Actually colonic contents appear to flow back into the small intestine and stomach. This reflex reduces efficiency of the small intestine as an absorptive surface by producing subacute and chronic inflammatory changes in the mucosa. These observations serve to explain some of the good results obtained years ago when colostomies, which decompressed the colon, were performed as the first stage of repair of such a fistula.

Marshall¹³ of the Lahey Clinic had anticipated Renshaw's experimental results. In cases of gastrojejuno-colic fistula he divided the terminal part of the ileum and made a side-to-side anastomosis between the proximal part and the descending colon. By this means, contents of the right part of the colon were deflected from the stomach and jejunum, and the absorptive functions of the small intestine were restored. After this procedure the nutritional defect may be corrected speedily and resection of the fistula, therefore, may be done with greatly reduced risk. In some cases the ileosigmoidostomy alone has produced satisfactory relief of symptoms and possibly a closure of the fistula.

Other conditions of the small intestine.—In general the small intestine has been virtually *terra incognita* so far as accurate clinical diagnosis is concerned. Each successive year brings an increasing group of diagnostic advances in disease of this part of the body. These come chiefly from roentgenologic sources. Recently data¹¹ on a group of 49 neoplasms of the duodenum which were diagnosed roentgenologically have been reported. It is of some interest to note that the symptoms were chiefly those of mechanical obstruction and bleeding and that diagnosis depended on careful roentgenoscopic study of the

second and third portions of the duodenum, where about 70 per cent of these lesions (carcinomas, leiomyosarcomas) are located.

Sprue.—Some notable advances have been reported in the treatment of sprue with folic acid.¹² The cases so far reported have largely been studied in tropical hospitals and clinics, and uniformly good results apparently have been attained. The diarrhea ceases, the nutritional status of the patient improves and the familiar macrocytic anemia disappears. An attempt to use folic acid therapy in temperate climates for patients presenting the sprue syndrome has not fared so well.²¹ A careful study of a group of patients who had sprue, made under constant dietary and environmental conditions in a metabolic unit, has failed to disclose any significant alterations in loss of fat and nitrogen while various doses of folic acid were being administered. Neither the anemia nor the other associated nutritional defects decreased. These rather sharp differences in therapeutic response suggest that the tropical and nontropical types of the disease may have different etiologic origins. This concept furnishes a new starting point for the study of this puzzling disorder.

Chronic ulcerative colitis.—Little that is new can be reported on the subject of chronic ulcerative colitis. A long and detailed study of sulfonamide and other antibiotic therapy of the intractable disease has failed to yield anything new. Although the sulfonamides of low toxicity, such as sulfathalidine, possess some therapeutic advantages, they add little that is encouraging to the earlier partial successes with neoprontosil. Other antibiotics generally have had a limited effect on the acute case during relapse, although a few mildly optimistic reports⁹ on the effectiveness of streptomycin in fulminant cases have appeared. British workers¹⁴ have used thiouracil in a few cases and have made a report sufficiently encouraging to warrant further study.

The old controversy over the etiology of ulcerative colitis may well be renewed by a recent report of Felsen and Wolarsky⁵ who have long held that this disease, as well as regional ileitis, represents the residual chronic lesions produced by previous infections with organisms of the dysentery group. They cite the fact that 10 per cent of individuals who contracted bacillary dysentery in the Jersey City epidemic of 1934 now have ulcerative colitis. They also have studied 60 cases of ulcerative colitis in veterans, in 33 of whom the initial symptoms could be traced to previous acute bacillary dysentery. In about 10 per cent of this group they recovered *Shigella dysenteriae* (*Bacillus dysenteriae*) from the bowel by aspiration of mucosal crypts. In the control group less than one-tenth of 1 per cent revealed positive cultures.

Some unpublished data⁷ on the treatment of diffuse ulcerative tuberculous enterocolitis with streptomycin permit me to conclude the report on intestinal disease with an encouraging note. This disease usually associated with extensive open pulmonary tuberculosis, has shown a gratifying response to

streptomycin therapy. I am not aware of any data on the effectiveness of such therapy in the hyperplastic form of ileocecal tuberculosis, but peritonitis due to tuberculosis seems to be most favorably affected by this antibiotic agent. With the formidable list of such substances now undergoing clinical trial, it is not too much to expect that the chronic inflammatory intestinal diseases (ileocolitis and ulcerative colitis) may soon be found to be amenable to therapy of this type.

THE PANCREAS

The major event of the war years in the field of pancreatic surgery was the development of the Whipple operation for radical removal of pancreatic neoplasms. Performed as either a one-stage or a two-stage procedure, it involves the removal of considerable portions of the stomach and duodenum along with the pancreas, the performance of choledochojejunostomy and, when the tail of the pancreas is not excised, the approximation of a loop of jejunum to the severed portion of the pancreas. Curiously enough, the risk of the operation in good hands has not been excessively high. The one-stage operation in early cases carries a risk of about 10 per cent. Since the condition is detected only at a late stage in many cases, the end results to date have not been particularly encouraging. Some long periods of survival after operation are on record, however, and with further improvements in diagnosis and surgical technique, better results are not out of the question.

Of great interest are the nutritional consequences of this extensive procedure. As a rule, considerable steatorrhea and creatorrhea are noted, but they may be partially corrected by the use of pancreatic extract. Diabetes, an associated disease in some cases, has not been made much worse by the operation, and the requirements for insulin are only moderately increased. A comparison of the loss of fat with that seen after gastric resection suggests that the loss of the duodenum as an absorptive surface is probably almost as important as the loss of the external secretions of the pancreas.

Internists generally are grateful for any reports which clarify the history of benign inflammatory pancreatic disease. Such a report was forthcoming during 1946. The authors (Comfort and associates⁴) defined the clinical syndrome of chronic relapsing pancreatitis and have shown its relation to pancreatic calcinosis and lithiasis. They have shown that the disease is characterized by recurring acute exacerbations which at first are manifested only by painful episodes, temporary glycosuria and transient increases in the concentrations of amylase and lipase in the serum. As each successive attack destroys more pancreatic acinar tissue, the changes in the serum enzymes become less striking and the picture of deficiency of the external pancreatic secretions makes its appearance. This may or may not be associated with diabetes. Still later, calcification of the pancreas and complete loss of its external and internal secretions ensue. The authors emphasize that chronic pancreatitis of this type is not a rare disease, that

the character, distribution and location of pain should lead to early recognition if the condition is borne in mind, and, finally, that whether the underlying pathologic processes be those of edema, hemorrhage, fibrosis, calcinosis or cysts, the nature of the clinical syndrome is essentially unchanged.

Since the primary disease is often associated with disorders of the biliary tract, the best available means of treatment is surgical and consists of prolonged external or permanent internal biliary drainage (choledochoduodenostomy). Even after this is accomplished, the painful seizures and progressive destruction of the pancreas may continue. In such cases total pancreatectomy may be considered as a last resort.

HEPATIC DISEASE

One of the most important fields of investigation of hepatic disease at present is that concerned with the possible residues of epidemic hepatitis, a disease which has involved uncounted numbers of service personnel and civilians in the past five years. It is now believed that a fairly large number of these persons continue to have symptoms, of which the most constant are lassitude, pain in the right upper quadrant of the abdomen and relative intolerance to fatty foods. Hepatomegaly or splenomegaly or both, plus alterations of varying degree in the results of studies of hepatic function, often are present. The probable outcome of chronic hepatitis of this type remains uncertain.

Among the other possible consequences of epidemic hepatitis, as yet traced to it chiefly by circumstantial evidence, are two distinct types of progressive degenerative diseases of the liver. The first is the type sometimes described as toxic cirrhosis or atrophy; the second is a more chronic variety with many of the features of hypertrophic biliary cirrhosis. Both varieties tend to progress (the first rapidly, the second slowly) and eventually present a terminal clinical picture comparable to that seen in Laënnec's cirrhosis. Continued study and observation of patients who have had infectious hepatitis and whose health has not been regained doubtless will reveal other residues of this disease. Likewise, a review of groups of patients who have chronic hepatic disease of obscure origin may indicate that infectious hepatitis may have been of etiologic importance. Watson²⁰ has offered a suggestion as to a means by which such cases of liver injury may be distinguished from those secondary to cirrhosis or dietary deficiency or both. In the postinfectious group there is increased excretion of the type I isomer of coproporphyrin, while in the alcoholic variety of cirrhosis, the type III isomer is found.

The study of hepatic and portal venous flow in normal persons and in patients who have liver disease has languished for some years because of lack of suitable methods for its determination. Recently Bradley and his associates³ have attacked the problem by introducing a catheter into the hepatic veins by way of the right side of the heart. The rate of blood flow through the liver may be calculated by

determining the clearance rate and concentration of continuously administered bromsulfalein in the hepatic veins and in the peripheral blood. In cirrhosis, the hepatic blood flow is significantly decreased, a fact which might have been predicted from the pathologic changes observed in cirrhosis. It also leads the investigator to the tentative conclusion that a great part of the blood passing through the liver in cirrhosis is that which reaches it via the hepatic artery. These observations may be of clinical importance when portacaval anastomosis, a surgical procedure developed recently at Whipple's clinic for treatment of portal hypertension, is considered. They give assurance that a considerable degree of short-circuiting of the portal blood may have preceded the operation contemplated by the surgeon.

As is generally known, portal hypertension usually results from the constriction of the portal venous bed by scar tissue subsequent to chronic disease of the liver and is the pathologic factor responsible for the development of collateral venous circulation and the formation of esophageal varices. Until recent times, no entirely satisfactory method for the control of bleeding from the esophageal vessels has been available. Splenectomy, omentopexy, ligation of the coronary veins of the stomach and direct injection of the esophageal vessels have all failed to produce entirely satisfactory results. Blakemore and Lord¹ have anastomosed the hypertensive portal or splenic vein with the caval vessels by two methods: (1) joining the splenic and left renal veins after simultaneously removing the spleen and left kidney, and (2) forming an Eck fistula by implanting the severed distal portion of the portal vein into the vena cava. The latter operation is said to be somewhat less difficult and may be the procedure of choice. Both will considerably reduce portal hypertension, as their originators have shown by direct manometric measurement.

In a small series of cases described by these investigators, cessation of bleeding, diminution of ascites and even improvement of hepatic function have occurred. In spite of the fact that these operations require special knowledge of vascular surgery and a high degree of surgical judgment and skill, they probably will be utilized more extensively in the future. Their importance may be appreciated when it is considered that hemorrhage from ruptured esophageal varices is directly or indirectly responsible for the death of perhaps 15 per cent of patients with cirrhosis.

Medical treatment of hepatic disease continues to concern itself with the less spectacular but equally important business of maintaining the nutritional status of the patient, with particular reference to protein and vitamin metabolism. Since the results of treatment of cirrhosis by primarily dietetic means were first reported, numerous additional studies on the subject have appeared fully confirming the original observations. Various accessory therapeutic agents have been employed recently, notably choline and methionine, each of which has a specific effect

on certain types of nutritional hepatic injury in animals. Evidence indicates that each may have a place in clinical medicine, but for the present their effectiveness in hepatic disease has not been verified by adequate control studies. Choline seems to be of definite value in the treatment of large and presumably fatty livers of alcoholics. Methionine on the other hand has contributed little or nothing to the treatment of epidemic hepatitis.

Two newly introduced therapeutic agents in hepatic disease rest on firm physiologic ground. The first is a preparation of liver extract designed for intravenous administration in dosage in excess of that employed in the treatment of primary anemia. This material has been the subject of a recent report from the Rockefeller Institute.¹⁰ Patients receiving the material over considerable periods have shown an increase in appetite, in the intake of food and in serum albumin, improvement in results of liver functional tests and disappearance of ascites. More important, a survival rate of 77 per cent in a two-year period was reported.

The use of serum albumin of the concentrated salt-poor type prepared according to the methods developed in Cohn's laboratory also has been the subject of recent reports. Its use in cirrhosis with ascites and decreased level of serum albumin has been attended by retention of a large part of the injected albumin, an increase in the albumin content of the serum, diuresis and reduction in ascites.² The high cost and scarcity of the material largely preclude its general use, but it may eventually be employed in the treatment of cirrhotic patients who cannot be induced to increase their intake of food and who cannot be maintained in nitrogen equilibrium by ordinary means.¹⁰ Since individuals with hepatic disease appear to stand or fall on their ability to retain nitrogen and manufacture protein, the use of albumin probably will be extended to cover further deficiencies in this field of therapy.

DISCUSSION AND QUESTIONS AND ANSWERS

DR. SNELL: I have been asked whether there is any method of treating plasma which will permit its use without danger of transmitting serum hepatitis. No satisfactory method is known at present. It has been thought that irradiation with ultraviolet light may inactivate the virus, but I understand that some recent studies have cast doubt on the value of this procedure.

Next question: "Does this necessarily mean that all the Red Cross plasma must be discarded?"

Probably not, since recent studies indicate that it may be possible to inactivate the virus by heating it under certain conditions and then concentrating the plasma to form salt-poor concentrated serum albumin. This preparation, of course, is fully as effective in shock and in the treatment of burns as is plasma and has the advantage of higher osmotic pressure and smaller bulk.

Next question: I have been asked in regard to the dose of enterogastrone.

Since there is no way of standardizing the material, exact dosage is not known, and it has been given chiefly by a process of trial and error. Intramuscular use of enterogastrone has been largely abandoned because of irritation. Oral

preparations are still in the experimental stage. It is possible that within the next few months there may be some idea as to the dosage of the preparation.

The next question is as to the dose of pancreatin.

About 5 grams of pancreatin a day is required to control steatorrhea of pancreatic origin. Smaller doses are of little value.

Next question: "What is the present status of vagotomy for the treatment of peptic ulcer?"

This question has been considered fully in another portion of this program and will not be discussed in detail here. The operation has one feature which must be borne in mind. Having performed it, the surgeon has not burned his bridges or mutilated the digestive tract. He leaves the field free for further procedures at a later date. This is of some importance when one considers the youth of many patients with ulcer.

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What's New in Peripheral Vascular Disease*

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THE field of vascular surgery has expanded so rapidly during the past several years that selection is necessary in reviewing the recent advances. The intention here is to present only a brief summary of the outstanding contributions.

DRUGS ACTING ON THE SYMPATHETIC NERVOUS SYSTEM

Great interest has been shown in the sympatholytic drugs, those which inhibit vasoconstriction. Although the pharmacology of quaternary ammonium compounds has been known since the researches of Burn and Dale⁶ in 1914, clinical application has been greatly stimulated by the publications of Moe and other investigators from the University of Michigan School of Medicine.^{3,10} They have shown that tetraethylammonium chloride blocks the transmission of autonomic impulses across ganglia producing a paralysis of both sympathetic and parasympathetic activities. This drug can be safely given by intravenous injection in man in doses up to 5 cc. of a 10 per cent solution. It has proved especially useful in the diagnosis of peripheral vascular disease. Since vasoconstriction is abolished, if there is little or no organic occlusion the skin temperature of the digits rapidly rises to a high level. In this respect, its effect is comparable to that obtained by sympathetic block, local nerve block or the vasodilatation test. We have observed that occasionally, especially in patients with marked vasoconstriction, the skin temperature fails to rise to the level subsequently produced by other methods. The relief of pain due to causalgia and reflex dystrophy is frequently impressive. The blood pressure may fall to low levels, especially in patients with high blood pressure. Postural hypotension is generally observed so that patients must be kept lying down for an hour or more after administration of the drug. Adrenalin is a specific antidote for the circulatory depression. There are various side effects, such as failure of accommodation, dryness of the mouth, arrest of peristalsis and bladder atony which preclude prolonged use.

Dibenamine, another adrenergic blocking agent, has been studied by Nickerson and Goodman.¹¹ This drug has been used in a wide variety of clinical conditions. Chemically it is closely related to the nitrogen mustards and may have a toxic action on the bone marrow.

Benzylimidazoline (Priscol) is similar in its pharmacological properties to these other two drugs, but according to Yonkman,⁷ is cholinergic as well as sympatholytic. Its action is sustained considerably longer than that of tetraethylammonium chloride. Few studies have been reported outside of Europe.

All of these drugs must still be looked upon as in the experimental stage but the interest shown in their development is highly significant. Hyperactivity of the sympathetic nervous system with its attendant vasoconstriction may interfere with adequate blood supply to the tissues. It can be predicted with some assurance that chemical control of vasomotor disturbances may ultimately be attainable.

TREATMENT OF PERIPHERAL ARTERIAL DISEASE

Treatment of obliterative vascular disease by vasodilatation has long held attraction. Two additions have been made within the past year to the therapeutic armamentarium. Katz⁹ has reported the use of intravenous ether, euphemistically termed diethyl oxide, in the treatment of impending ischemic gangrene. More recently Wirtschafter and Widmann¹² have described the benefits, even in the presence of advanced gangrene, of the intramuscular administration of 5 cc. of 4% histidine monohydrochloride together with the subcutaneous injection of 100 mgm. of sodium ascorbate. Too short a time has elapsed since the introduction of these methods of treatment to permit a critical appraisal of their merits. The use of vasodilators which act on blood vessels throughout the body in the treatment of arterial obliteration limited to a specific segment of the vascular tree must be looked upon with caution. General vasodilatation, unless accompanied by a considerable increase in cardiac output, may so lower the blood pressure as actually to decrease the blood flow to the affected tissues since the normal blood vessels may dilate more than those which are partially occluded. Again, it is probable that lack of blood supply itself is a vasodilating stimulus as powerful as it is physiologically possible to obtain. The beneficial results ascribed to these forms of treatment may be due to some mechanism other than vasodilatation in the ischemic area.

THROMBOEMBOLIC DISEASE

Thrombophlebitis and pulmonary embolism have received increasing attention as methods of control and prevention have become available. Although there is still a controversy between those who favor vein ligation and those who advocate the use of the anticoagulants, it is becoming increasingly clear that both methods have value. That form of treatment should be selected which is best suited to the individual case. The chief objections to the use of heparin have been the problem of controlling the coagulation time and the technical difficulty of intravenous administration. Bauer² has shown that the incidence of thromboembolism can be dramatically lowered by giving heparin by vein 3 or 4 times each day, even though it is recognized that the clotting time is not uniformly prolonged by this method. The technical difficulties of repeated venipuncture may be overcome by the use of a needle fitted with a rubber

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membrane as suggested by Jorpes.⁸ The needle is left in the vein and repeated injections of heparin are made through the rubber diaphragm.

Dicumarol is inexpensive and can be given by mouth. Its use must be carefully controlled by repeated determinations of the prothrombin level in the blood. Encouraging results from the prophylactic use of small doses of dicumarol, 200 mgm. on the 2nd or 3rd day after operation, have been reported by Allen.¹

SURGERY OF BLOOD VESSELS

Surgery of the major blood vessels has progressed steadily in the direction of conservation and restoration of function. Anastomosis of a large branch of the aorta to one of the pulmonary arteries to increase the blood flow through the lungs, so brilliantly conceived and executed by Blalock,⁵ is being more widely used. Coarctation of the aorta is being successfully treated by resection of the narrowed isthmus with end-to-end suture of the divided aorta. The portal vein or one of its major tributaries has been anastomosed to the inferior vena cava or renal vein to overcome portal hypertension with its attendant hemorrhages from esophageal varices. Encouraging results in the treatment of aneurysms of major systemic arteries by use of a vein-inlay graft have recently been reported by Blakemore.⁴ Repair of the artery in the presence of an arterio-venous fistula by suture of the defect in the arterial wall has led to complete restoration of function in 75 per cent of the patients in whom this operation was attempted. All of these developments have been directed toward improving the circulation and restoring function.

SYMPATHECTOMY

Sympathectomy is being more widely used as the indications for release of vasomotor tone are clarified. In the treatment of hypertension, even in those cases in which the blood pressure continues at a high level, improvement in the retinal vessels and cardiac function indicates that the progress of the disease has probably been slowed down or checked. In the treatment of obliterative arterial disease not so much reliance is now placed on diagnostic tests as formerly. Even though there is but little rise in skin temperature from temporary suppression of vascular tone as by nerve block, the results of sympathectomy have been surprisingly good. Of great significance as indications for sympathectomy are signs of increased sympathetic activity such as increased sweating and cyanosis. Certain contra-indications to the use of this operation have recently been emphasized. In the presence of severe arterial obliteration with tissue atrophy and rapid blanching of the extremity on elevation, sympathectomy, by opening up all the vessels in the extremity, may precipitate gangrene through diversion of blood from the most distal tissues. Where there is some capacity for the formation of new blood vessels, sympathectomy may be of increasing help through assisting in the development of the collateral circulation.

QUESTIONS AND ANSWERS

DR. FREEMAN: First question: "Is there any known liver damage from tetraethylammonium chloride?"

None so far reported.

Next question: "What about tetrathione in peripheral vascular diseases?"

Improvement in the utilization of oxygen and an increased oxygen saturation has been reported in patients with Buerger's Disease after the administration of tetrathione. I personally have had no experience with its use.

Next question: "A man with blood pressure of 130 over 80 is having difficulty when walking and must stop and rest a while before continuing. X-rays show nothing."

In the first place I should like to know the patient's age. I should also know whether or not there are any other vessels involved. Only by careful diagnosis of the arterial disorder can we determine what form of treatment is indicated. Occasionally biopsy of a thrombosed artery or arteriography after the injection of Thorotrast is helpful in differentiating arteriosclerosis from Buerger's Disease.

Next question: "Discuss the oscillating bed."

The oscillating bed is of great help at times with patients who have severe arterial obliterative disease, especially if they have continuous rest pain at night. We have previously demonstrated a small but definite increase in blood flow with the oscillating bed. This form of treatment has a great advantage in that it works automatically 24 hours a day and that there are practically no contraindications to its use. It can be used with benefit even in the presence of infection.

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What's New in Tropical Medicine*

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THE term "Tropical Medicine" was many years ago found by its practitioners to be a misnomer. Long search, however, failed to find a better one. Accepting it, then, for its brevity, its emphasis on a major feature, its history and its connotations, tropical medicine means the practice of medicine in warm climates. A warm environment aids the growth of vectors of tropical diseases and of such pathogens as viruses, fungi, bacteria, human protozoa and other parasites, and, very importantly, may alter the quantity and quality of human nutritional agents including caloric values, vitamins, minerals, biologic protein values and their sources. Pathogenic organisms usually occur in luxuriant, perverted or exotic forms in warm climates. As a result tropical medicine differs in emphasis, material and method from the medicine of temperate and cold climates. Human geography, with the geographic influences of climate on man and his artifacts, completes the picture.

In the United States, it is known that many tropical diseases are already present, either endemic (like murine typhus, hookworm disease, trichinosis, amebiasis and malaria), or repeatedly introduced (like dengue). Some, formerly considered rarities of importation, are found more prevalent with better diagnostic methods (as histoplasmosis). Others are minor actualities and enormous potentialities, such as onchocerciasis, leishmaniasis, pinta, yaws, louse typhus, schistosomiasis, American trypanosomiasis and numerous helminths.

Since about 1939, new points of view and research interests in the specialty of tropical medicine, and new factual data in the study and control of specific diseases have appeared or have attained recognition. During this period, these new fields of interest have burgeoned and their importance has been accentuated by increased commercial relations and travel between the United States and more tropical lands, as well as by military necessities. The same applies in a degree to relations between the warmer and the cooler parts of the United States. The emergence of both these conditions found the United States inadequately provided with institutions and men trained in tropical medicine. The advances, foreseen by the few and hitherto ignored by the many, have been unusual.

NEW TRENDS IN TROPICAL MEDICINE IN PAST EIGHT YEARS

War, and the needs of travel and commerce have brought a sharper realization that the world areas of hot wet, and hot dry climates must be studied as a

whole for the first time with reference to land utilization and the food supply of the human race.

The teaching of tropical medicine in medical schools has received intensive consideration. Necessary and valuable advances were made in provision of material and trained instructors in practically all medical schools. With the let-up in military requirements, it remains to be seen if the medical schools will provide in the future to a sufficient extent for the practical needs of their students, for the certain needs of the military, of commerce, of travelers and missionaries, and for the requirements of wide fields of preventive medicine. Tropical diseases for the United States are today a sufficient threat to justify medical school instruction in recognition and control. This instruction should be "adequate and required."¹

The national and world need for research and graduate teaching in tropical medicine have received splendid recognition in the establishment of the Liberian Institute of the American Foundation for Tropical Medicine, Inc. This Institute, in the words of Doctor T. T. Mackie, its president, "represents a partnership between the government of the Republic of Liberia, American business and American science." It will afford a well-equipped field station for intensive study of medical and economic problems of hot climates. Of the new things in tropical medicine, the establishment of the Liberian Institute is one of the most significant.

NEW FACTUAL DATA

New factual data in the study and control of specific diseases have appeared in tremendous number. Among these some of the more important can best be noted under the respective diseases.

Advances in *malaria* have been outstanding, so much so as to raise the hope that world-control of malaria is a possibility.

In chemotherapy² Paludrine (N₁-para-chlorophenyl-N₅-isopropyl guanide acetate) has been developed by Fairley,² et al. in an extensive research involving 500 human volunteers from the Australian army at Cairns, Australia. Fairley concludes that "paludrine is superior to all known anti-malarial drugs, as, in non-toxic dosage, it is a complete causal prophylactic in falciparum malaria." It shows highly lethal action on pre-erythrocytic forms of *Plasmodium falciparum*, and a single dose of 50 to 100 mg. given orally two to five days after exposure to infective bites, provides complete protection. In *vivax* malaria, paludrine in all cases acts as a partial causal prophylactic but complete eradication of extra-erythrocytic forms does not occur regularly, so that overt attacks are apt to follow discontinuance of the drug. Paludrine quickly controls clinical attacks of falciparum malaria and produces complete cure. In

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vivax overt attacks, radical cures have not yet been determined. Paludrine does not kill sexual forms in the human carrier but it does sterilize these forms in the mosquitoes fed on human blood containing sexual forms of both *vivax* and *falciparum* as early as one to two hours after the first dose of the drug is taken. This action persists for a variable time until the drug has been eliminated. Paludrine is remarkably free of toxicity, and there is a wide margin between therapeutic and toxic dosage. No example of idiosyncrasy to the drug has been seen thus far. In non-immunes a single dose of 100 mg. may terminate a clinical attack in both *falciparum* and *vivax* malaria. In *falciparum* infections it is a true causal prophylactic if given within two to five days after infective bites in a recommended dosage of 100 mg. twice weekly. In *vivax* infections 100 mg. once each week controls relapses indefinitely.

Chloroquine (7-chloro-4-(4 diethyl amino-1 methylbutyl amino) quinoline), like paludrine, seems superior to atabrin, in that it causes no gastrointestinal or cerebral symptoms, and no skin pigmentation; it brings faster disappearance of clinical symptoms; and, in *vivax* infections, relapses are fewer and at longer intervals. Full treatment of an overt attack consists of 600 mg. orally on the first day, followed by 300 mg. on each of the three successive days. For suppression 300 mg. once each week is sufficient.

Pentaquine (6 methoxy-8-(5 isopropyl amino amyl amino)-quinoline) is reported more powerful than quinine or atabrin.⁴ Its use in man has been limited almost completely to treatment of *vivax* infections under experimental conditions in the South Pacific. It is too toxic for continued suppressive use. A daily dose of 60 mg. of the base (80 mg. of the di-phosphate) given together with 2.0 grams of quinine in divided doses at four-hour intervals for 14 days, is radically curative in *vivax* infections. The maximal daily dose is 60 mg. It must be given under strict medical supervision, preferably in hospital. Racial toxicities and optimum dosage for children are not yet certain. Pentaquine is equal to plasmochin in activity and half as toxic.

Atabrin has proved to be a successful suppressive in dosage of 100 mg. daily. Overt malarial attacks practically never break through. It can replace quinine except under special conditions. Its continuance for a minimum of one month eliminates practically all *falciparum* infection. Its discontinuance is usually followed by relapses of *vivax* infections. Overt *vivax* attacks are controlled by the standard dosage of 1.0 gram in five divided doses in 30 hours, followed by 100 mg. three times daily for five or six days. The hydrochloride can be used intra-muscularly for the same indications as intravenous quinine. It causes harmless yellow pigmentation of the skin and often gastro-intestinal symptoms which are largely preventable. Suppressive treatment with atabrin requires discipline and training. When it is used constantly, even extreme so-called triggers for overt attacks

(such as exhaustion, chilling, etc.) do not break through into clinical attacks of malaria.

An extra-erythrocytic stage of malaria has been demonstrated in six bird malarias, and circumstantially proved in man. This stage follows the quick disappearance of sporozoites after their inoculation by the mosquito and precedes the first appearance of ring-forms in the red cells. Recently it has been postulated that cyclical development in this fixed tissue stage is closely related to persistence of malarial infection and malarial relapses. Sapero⁵ says "A prolonged period of fixed tissue development with repeated partial expulsion of parasites would lead to a relapsing disease, and to its termination only when all the parasites are expelled." This is the general situation in *vivax* malaria. Difference between strains of one plasmodial species would cause difference in fixed tissue cycles and in clinical patterns. In therapy, quinine, atabrin and chloroquin act on plasmodial stages in red cells, while plasmochin, paludrine and pentaquine act chiefly on fixed tissue stages. This explains the failure of atabrin to cure *vivax* malaria. This concept is the basis today of malarial therapy.

Entomologic control has been vastly improved by expert technical organization and supervision, and the use of new larvicides and insecticides. Fuller knowledge of mosquito breeding habits has been applied on the basis of local entomologic studies. DDT has permitted effective larvicidal campaigns and also direct destruction of adult mosquitoes in significant quantities. Both are possible with lighter applications of DDT than of older drugs. In adult mosquito destruction, spraying of housing interiors and impregnation of bed nets have been developed effectively. Adult eradication has become a valuable adjunct to mosquito control and of primary value where cost and inaccessibility make larvicidal methods difficult or ineffective. The prolonged residual action of DDT is utilized in aerosols which are at the same time insecticidal and larvicidal.

The spread of new vectors in an area is now well curbed by new spraying methods for planes and ships and control of ports and airfields.

Insect control in general with preparations of DDT and similar substances has made possible the rapid destruction of mosquitoes, flies, lice and other vectors and intermediate hosts. The result is the ability quickly to control the spread of malaria, filariasis, dengue, enteric fevers, sandfly fever, louse typhus, relapsing fever, bartonellosis, leishmaniasis and other diseases. Soon to be on the market, are *Rhothane*, one-fourth as toxic as DDT for warm-blooded animals and more powerful as a mosquito larvicide, and *Lethane*, a safe and effective household insecticide for mosquitoes, roaches, bedbugs, weevils, clothes moths, flies and fleas.

A new *raticide* has been discovered in sodium fluoro-acetate which is highly lethal to these rodents but is also extremely dangerous for domestic animals and man.

Insect repellents have important additions in di-

methyl phthalate, dibutyl phthalate and benzyl benzoate. These have been used in various emulsions to make clothing resistant to insects and to repel insects from the skin. They are effective for various periods of time against chiggers, mites, mosquitoes, cercariae of schistosoma, and flies. Clothing impregnated with benzyl benzoate, even after several launderings, still repels mites and is lethal for schistosomal cercariae. This drug is an effective treatment for scabies.

Penicillin has proved an efficient treatment for the tropical spirochetoses—yaws, pinta, lepto-spirosis and relapsing fever. It is a valuable alternative when arsenic is contra-indicated. It is used in septic complications of typhus, where sulfa drugs are contra-indicated.

The story of sulfa drugs in *bacillary dysentery* was a dramatic war chapter. Sulfadiazine by preference is highly specific and also has been used in 1.0 gram doses daily as a prophylactic where infection is to be expected.

One striking and highly important discovery has been that para-aminobenzoic acid is a relatively specific remedy in *typhus fever* in the first several days of infection. It has been used in epidemic (louse-borne) typhus, spotted fever and scrub typhus. An initial dose of from 4.0 to 8.0 grams followed by 2.0 grams each two hours practically removes risk of fatality. It is important to give the patient sufficient bicarbonate of soda during the course of treatment to keep the urine neutral. Frequent blood counts should be taken during treatment, also, to make sure that a neutropenia is not developing. A blood plasma level of 30-60 mg. per 100 cc. is necessary. The use of para-amino-benzoic acid strictly contra-indicates the use of sulfa drugs. The Cox type of vaccine (egg yolk sac culture of rickettsia) and the Castaneda mouse lung vaccine have brought a substantial reduction in morbidity and have practically wiped out mortality from epidemic typhus in vaccinated persons. Louse control by DDT dusting of clothing and persons has added greatly to the effectiveness of typhus control. Impregnated clothing furnishes another protection.

In *leishmaniasis* several new drugs are in use. Best among these are *solustibosan* (sodium antimonyl gluconate) and, for the resistant types, *stilbamidine* (4, 4 diamidino stilbene). The latter is more toxic and requires more cautious use.

The therapy of *plague* is finally on a curative basis provided treatment starts on the first day before bacteremia sets in. The drug of choice is sulfadiazine which is given in an initial dose of 4.6 grams, followed by 1 to 2 grams each four hours for ten days or until the fever ends. After this period 0.5 gram should be given each three hours for 14 days after temperature is normal. Fluids and sodium bicarbonate must be adequate with each dose. In fulminating cases, sodium sulfadiazine is given intravenously. In addition anti-plague serum (rabbit or horse) should be given in full doses. Such combined treatment in bubonic plague gives an excellent prognosis. Fatali-

ties are due to delay in starting treatment. Primary pneumonic plague, which is clinically a different disease, is almost always fatal in any case. Even vaccinated plague patients may die if not treated. It is always to be remembered that under natural conditions plague is the most probably fatal of all diseases.

Immunization against plague has resulted in increased attention to vaccination with attenuated or avirulent strains. Jawetz and Meyer³ consider properly tested live vaccines as safe, and superior in immunogenic power in experimental animals to any killed vaccine available at the time. The Haffkine type of killed vaccine has been improved so that vaccinated persons have four times the protection of the unvaccinated. In Java, South Africa and Madagascar, the Otten type of living avirulent vaccine has given 80-90 per cent protection.

Plague control combining DDT for fleas, sodium fluoro-acetate for rats, vaccination, and early treatment, is highly effective.

Treatment of *cholera* has been put on a new plane by combining sulfadiazine with plasma. Used early, this method practically makes certain the recovery of the patient. The death rate from cholera in India in unvaccinated and untreated persons has been 40-70 per cent. Protection by killed vaccines made from virulent strains of vibrios has been about 90 per cent as compared with the high susceptibility of unvaccinated persons.

Folic acid has opened a new chapter in the cure of sprue and tropical macrocytic anemias.

Leprosy treatment on a definitive basis has been advanced, especially at Carville, by use of several drugs, combined, particularly promine diasone and streptomycin.

Miscellaneous advances have been made in numerous diseases, as examples of which the following may be mentioned. Species-specific methods for immunologic and serologic diagnosis have been greatly improved and made of practical use in louse and rat-borne typhus, scrub typhus, spotted fever, *Q* fever, bartonellosis, amebiasis, kala azar, espundia, oriental sore and Chagas disease. Improved group-specific antigens have been discovered for the diagnosis of Bancroft's filariasis, onchocerciasis and the schistosomes. Concentration methods have been perfected for micro-filaria and schistosoma ova. It seems likely that effective vaccines will shortly appear for sandfly fever, dengue and scrub typhus.

CONCLUSION

The advances in tropical medicine since 1939 have been highly promising for the control of some of the greatest disease killers of mankind. Future needs and achievements to date make tropical medicine a valid specialty which justifies support in peacetime as it forced support in wartime. Simmons⁶ furnishes an excellent review of the wartime contribution of tropical medicine: "This wartime experience with tropical diseases was a severe jolt to the complacency of those who formerly assumed that tropical medicine was

no longer of importance to the United States. It showed that the diseases of the tropics are still a hazard to Americans who travel or live in certain foreign countries. It showed that this country is still exposed to invasion by exotic diseases and indicated the importance of modifying quarantine procedures to meet the new methods of transportation. Finally, it emphasized the urgent need for a continuing program of research and training in order to control tropical diseases, both here in the United States, and in their tropical reservoirs."

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What's New in Cardiovascular Disease*

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PROGRESS in the field of cardiovascular disease during the past year has been delayed, as in other fields, by the readjustment period following the war, but some notable progress has been made. Several reports during the past year suggest that greater advance may be expected in the near future.

SYMPTOMS

Hunter¹¹ has reported a conspicuous absence of pain in Negroes with coronary artery occlusion, expressing the belief that dyspnea rather than pain is the usual initial symptom in coronary artery closure in this race. Smith²⁰ has challenged this view vigorously and expresses the opinion that there is no justification for it.

ELECTROCARDIOGRAPHY

The most significant change in this field during the past year is perhaps a general appreciation of the importance of multiple precordial leads in the identification of myocardial infarcts, and the general recognition of the fact that we have been overlooking infarcts in the past by failure to use more than a single precordial lead.

TREATMENT

Subacute bacterial endocarditis: Agreement is now fairly general in regard to the principles of treatment of this disease and has been well expressed by Hunter.¹⁰ Anticoagulant therapy is now regarded as contra-indicated. Identification of the organism, in vitro testing of its sensitivity to antibiotics, and the production of a blood level of drug four to five times that required to kill the organism in vitro are now regarded as fundamentals. Frequent injections of drug as often as every one to two hours are regarded

as essential with constant intramuscular drip preferred by some. The minimum period of treatment should probably be three weeks. With adherence to these rules, it should be possible to cure about 90 per cent of the cases.

Salicylates in rheumatic fever: The value of salicylates in rheumatic fever continues to be recognized, but the intravenous route for their administration is no longer considered to offer any advantage over the oral route.⁸

Rice diet in hypertension: Kempner¹² has reported further experience with a diet consisting of rice, fruit, and sugar. Among 222 patients improvement was noted in 62 per cent. Lowering of blood cholesterol levels, reduction in heart size, improvement in the electrocardiogram, and retinal changes were reported.

Low sodium diet in congestive failure: The importance of this diet in mobilization of fluid is becoming generally appreciated to the gratification of patient and doctor alike. A review by Wheeler, Bridges and White, followed by a discussion by Schemm, is to be found in a recent issue of the *Journal of the American Medical Association*.²¹

Dicumarol in acute coronary occlusion: Nichol and Page¹⁴ and Peters, Guyther and Brambel¹⁵ have reported the prevention of emboli, both pulmonary and arterial, following coronary occlusion by the use of this anticoagulant and have indicated that mortality is probably reduced. At the present time, however, the widespread use of the drug in this connection is probably to be discouraged¹⁹ because of the theoretical hazards and expense, and because carefully controlled studies to define the indications and contra-indications of the method are now being carried out by a committee of competent observers appointed last spring by the American Heart Association.

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Cytochrome C: This substance, prepared from beef heart, has been demonstrated by Proger and Dekaneas^{17,18} to be effective in promoting the utilization of oxygen by tissue. Preliminary reports indicate that it may be useful in combating shock and the cerebral and myocardial effects of anoxia. Reports on its use in angina pectoris and myocardial infarction may be expected in the future.

Rutin: This glucoside, coming chiefly from tobacco and buckwheat, is said to decrease capillary fragility and has thus been used in an effort to prevent the cerebral vascular effects of hypertension. A statement⁶ by the Council on Pharmacy and Chemistry of the American Medical Association, in which it is pointed out that no such increased capillary fragility has been regularly demonstrated in hypertension, should be read by those contemplating the use of this substance.

Histamine: Histamine, elaborated when histidine and ascorbic acid are administered together, has been used by Wirtschafter and Widmann²² in the treatment of obliterative peripheral vascular disease with reported results warranting further investigation. Application of the method to patients with coronary artery disease and hypertension is under investigation with no results reported to date.

Surgery in congenital cardiovascular disease: Operations on the sympathetic nervous system in the treatment of hypertension continue to be widely applied.

Surgical ligation and division of the patent ductus arteriosus are now well established procedures.

In the treatment of Tetralogy of Fallot and other forms of pulmonary stenosis,³ the surgical creation of an artificial ductus arteriosus, by the anastomosis of an innominate, carotid or subclavian artery with the pulmonary artery, is assuming its place. This so-called Blalock⁴ operation has been altered by Potts, Smith and Gibson¹⁶ by the production of an opening directly between aorta and pulmonary artery, thus eliminating the need for sacrificing a large systemic artery.

Surgical excision of coarctation of the aorta has now been performed in a small number of patients^{7,9} with exceedingly promising results in relief of the hypertension in the upper extremities and the restoration of a normal circulation to the lower extremities.

Successful closure of experimentally produced interauricular septal defects in dogs has been reported by Cohn.⁵

Thrombo-embolic disease: The debate on the indications for anticoagulants and for venous ligation in an effort to prevent pulmonary emboli arising from

phlebothrombosis and thrombophlebitis continues to be vigorous, with much to be said for both methods.^{1,2,13}

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What's New in Syphilis*

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PENICILLIN is still the newest thing in syphilis. It is not actually very new as it has been in use for more than four years, but since the evaluation of antisyphilitic therapy is a very slow, tedious and uncertain process, we are just beginning to learn what can be expected of penicillin.

Evaluation of therapy in syphilis must be carried out on a different basis than in most other diseases because it has to be done in reverse. If a patient with syphilis is treated and subsequently remains well for a year or two, there is no evidence that he is cured, but if any manifestations of the disease reappear, it is clear that the treatment has failed. Arrest or cure in syphilis cannot be claimed until a patient has died without having developed any further evidence of the infection. So, in order to draw conclusions within a reasonable period of time, we are forced to compare the effectiveness of different treatment schemes according to the relative incidence of failure.

Early detection of treatment failure is possible only in early syphilis and the clinical evaluation of any new antisyphilitic agent must be initiated at this stage of the disease. The recurrence of lesions of syphilis, or of strongly positive serologic tests after previous negativity, the persistence of strong positive tests for a year after treatment or the development of clinical or serologic evidence of nervous system involvement, all indicate failure. The frequency of such events after the treatment of syphilis with penicillin is the principal basis for the determination of the value of penicillin and of the most effective methods for its administration.

The most extensive investigation of penicillin in early syphilis has been carried out under the direction of the National Research Council and later the National Institute of Health with the cooperation of the army and the navy and some forty civilian clinics scattered throughout the United States. About a year ago, the material from this investigation was summarized and it appeared that the position of penicillin in the treatment of syphilis was settled. About 10,000 patients with early syphilis had been treated, with a variety of treatment schemes, and had been observed for slightly over a year. The results led to the development of certain principles of penicillin therapy upon which most of our subsequent treatment has been based.

In brief, these principles were that the total dose should be at least 2.4 million units, that the injections should be given at intervals of not over three hours, that the treatment should occupy a period of

not less than seven days and that small amounts of arsenoxide and bismuth should be given in addition, since this was shown to decrease markedly the incidence of treatment failure with only a moderate increase in risk.

Recently the results of this investigation have been reviewed again with the number of cases increased to 15,000 and the period of observation to almost two years. The conclusions reached as a result of this re-survey are indeed startling. Everything that we thought we knew about the treatment of syphilis with penicillin last year now appears to be wrong. The total dose is of little consequence, the same results being obtained with anything from 1.2 to 10 million units. It makes no difference whether the injections are given at intervals of two, four or six hours, and the time of treatment may be four, seven or fifteen days. Of still greater importance is the demonstration that the addition of arsenic or bismuth, either combined or separately, adds nothing to the effectiveness of penicillin therapy, and since it does definitely augment the risk, the combination of these drugs with penicillin should be abandoned in the future.

The most alarming conclusion from this treatment survey, however, is that the total incidence of failure after penicillin therapy is almost 30 per cent no matter what scheme of treatment is used. This is a poor record in comparison with many of the older treatment regimes using arsenic and bismuth, and the question arises whether or not we can justify the use of penicillin when it results in a failure rate of such magnitude. I think we can on the basis of two factors that must be considered but cannot be expressed in figures.

The first of these is toxicity. Penicillin is completely innocuous and thereby differs from all other antisyphilitic agents which are essentially dangerous. Secondly, penicillin treatment can be completed within a period of a few days so that practically every patient who starts the therapy completes it.

The only type of treatment that competes with penicillin in time of administration is intensive arsenotherapy where curative doses of arsenic are administered in a period of five to ten days. The risk of this treatment is exceedingly high and although the failures are few among those who survive, the overall death-rate of 1/200 practically eliminates this type of therapy.

On the other hand, experience has shown that the older treatments fail largely because only about 35 per cent of those who start ever go on to completion. Those who complete the older treatment are probably better off than those who take penicillin but for those who fall by the wayside, penicillin would have been infinitely better.

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On the grounds, therefore, that penicillin therapy can be completed in every case in which it has been started and that its administration is practically devoid of danger, I think it is still the treatment of choice in early syphilis in spite of its high rate of failure. This opinion is based partly on the fact that an initial failure in treatment does not indicate the impossibility of final cure. There is no evidence that syphilis can become resistant to penicillin and the great majority of patients who have required retreatment have responded perfectly well to subsequent courses of penicillin and have, for the most part, remained permanently well. However, because of the frequency of relapse after penicillin, it is vital that patients treated with it be followed with great care. They should be examined physically for lesions of the skin and mucous membranes at intervals of not over one month for the first year and every few months after that for several years. They should also have periodic serologic tests, preferably by some quantitative technic, taken at the time of their physical examinations.

In late syphilis, we know less about penicillin therapy than in early syphilis. It appears to be quite useful in neurosyphilis of various kinds and is of particular value because it not infrequently is effective in cases which would be expected to respond only to fever therapy with its very much greater risk.

Penicillin seems to be better than anything we have ever had for the treatment of syphilis during pregnancy. It will almost invariably protect the child regardless of the duration of the pregnancy or of the stage of the infection in the mother. It is probably not indicated in late latent syphilis and we would not expect it to have any great effect on the Wassermann reaction because in its widespread use in late neurosyphilis, it has been shown to be relatively ineffective in producing a negative serologic test in the blood. In particular it should not be used in a final attempt to reverse a blood Wassermann that has remained positive in a patient who has already had adequate therapy of the conventional type.

DISCUSSION AND QUESTIONS AND ANSWERS

I have more questions here than I can answer in detail and a number of which I am afraid I cannot answer at all. Several of them concern the effect of penicillin in oil and wax. I did not mention this because of the limited experience

we have had with it, but one of the most encouraging results of the penicillin in syphilis study is that penicillin in oil and wax appears to be somewhat more effective than does soluble penicillin. In this study, the total dose was 4.8 million units or more, usually given in daily doses of 600,000 units each. A more prolonged period of observation may change this impression, however, as it did in the case of the soluble preparation.

There are several questions about the time of retreatment after an initial failure. Retreatment should be started as soon as the failure is evident. If there is only a serologic relapse, it must be confirmed by the examination of another specimen of blood, before treatment is begun. If the only evidence of failure is the persistence of a positive serologic test, the treatment should not be repeated unless a strongly positive test persists for at least a year. Retreatment may be carried out with penicillin in augmented dosage, with conventional arsenic and bismuth therapy, or possibly some combination of the two.

The questions concerning the time that must elapse before sexual intercourse or marriage may be permitted after penicillin therapy are difficult to answer. Because of the high incidence of relapse, there is no period of time that will eliminate all possibility of transmission. Most infectious relapses occur within the first six months after therapy and most of them are preceded or accompanied by serologic relapses. Therefore, if we are to be reasonable about it, and will admit the impossibility of absolute safety, it seems to me that intercourse may be permitted with very little risk of transmission in the case of a patient whose blood has become negative and has remained so, but not for the first six months after treatment has been completed. If the patient is a male, a condom should be used, since the infection is occasionally transmitted by the seminal fluid in the absence of visible lesions. If the patient is female, the sexual partner should use chemical prophylaxis after each intercourse as an added protection.

Several physicians have asked how soon the blood will become negative after penicillin treatment. Usually two to three months elapses between the institution of therapy and the reversal of the blood tests. Even though the *treponema pallidum* has been eradicated by treatment, reagin will persist in the blood for some time and one should not expect an immediate reversal. Occasionally, as long as a year elapses before the blood becomes negative although quantitative tests will usually reveal a steady decline in serologic titer.

I have one question about the published results of the recent re-evaluation of penicillin in syphilis. The material was presented at a meeting of the Syphilis Study Committee of the National Institute of Health in Washington, D. C., on April 17, 1947. It has not been published as yet, and as to whether or not it will be I have no information.



What's New in Endocrinology*

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PROGRESS in endocrinology is toward incorporation with internal medicine. Endocrinologists are realizing as research goes on that their field is the same as that of internal medicine. Whereas in the past the problems of growth and sexual function occupied a great portion of endocrine thought, now it becomes evident that all phases of biochemistry and physiology are in part controlled by endocrine function. Most recently the domain of immunology has been invaded with the brilliant thesis that the immune globulin production from lymphoid tissue may be dependent on the "S" hormone of the adrenal cortex. This is an example of the development of endocrinology from its period of attention to pathetic circus exhibits of specimens of abnormal growth or sex disorder to its present work in hypertension, cancer, metabolism, cardiology, and immunology—in short, in the whole field of internal medicine.

Coincident with this growth, the practice of endocrinology will grow away from treatment in the form of "shots." Particularly in the field of gonadal hormone deficiency, the new chemical forms permit substitution therapy by oral medication that is extremely potent, truly physiological, continuous in action, of life-long effectiveness when necessary, and, lastly, economically possible for the patient. The practice of "shot" treatment for the menopause is no longer necessary and should be abandoned.

To enumerate the recent progress according to the individual glands and their hormones:

PITUITARY

The monumental work of Professor Herbert M. Evans at the University of California on the pituitary hormones was displayed by him and his associates at the 1946 A.M.A. convention. This group of investigators has shown the anterior pituitary hormones to be individual protein bodies with characteristic physical and chemical properties. This basic data provides a starting point for assay which will influence all future application of pituitary preparations to treatment.

THYROID

The work of Dr. James H. Means and his associates of the Harvard Medical School has resulted in several extremely important steps in the diagnosis and treatment of thyroid disease. An isotope of iodine which is radioactive, prepared with the cyclotron or with the atomic energy pile, can be given by mouth in a single dose in small amounts to a patient with hyperthyroidism. This is tasteless; it is apparently also harmless to the general digestion and

circulation. Following the channel of normal iodine physiology, it is very rapidly absorbed by the diseased thyroid and, being stored there, gives off its beta radiation which destroys the diseased thyroid tissue. Recently, a reliable report that thyroid cancer metastases have been depressed by the same isotope has appeared. A moderate number of patients with hyperthyroidism have been treated with radioactive iodine in this manner with success. If no harmful sequelae appear as time passes, this would seem to be a most effective and simple method of destroying thyroid tissue. More general distribution of the radioactive isotope from the atomic energy pile is now available.

In addition to this astounding development, progress in chemotherapy of hyperthyroidism with thiouracil derivatives continues. 6-N-propyl-thiouracil has been extensively tried in clinical investigation throughout the country. It will be on the market in the near future. This substance has the property of inhibiting the formation of thyroid hormone. The incidence of toxic effects, particularly those on the bone marrow, with this form of thiouracil is about three per cent. It is effective in controlling the excessive production of thyroid hormone until the primary disease stimuli have died out. Divided daily dosage and frequent observation of the blood for months at a time are required in this form of therapy. Nevertheless it is effective.

It must be realized that neither the internal radiation therapy of radioactive iodine nor the hormone production inhibiting action of propyl-thiouracil represents an advance in the etiology of hyperthyroidism.

DIABETES

In diabetes mellitus, the proofs of the etiologic importance of hyperglycemia have recently been summarized by Ricketts. Lukens and Dohan have shown that permanent diabetes can be produced in animals simply by the repeated intraperitoneal injection of sugar. This is the last of a series of procedures leading to diabetes in animal experimentation, each characterized by hyperglycemia and each ineffective in its result if the hyperglycemia is controlled either by diet, insulin, or phloridzin. It would seem inescapable, then, that chronic hyperglycemia was indicative of a condition which would lead to progressively more severe diabetes.

In diabetic management the use of mixed regular and protamine zinc insulin as recommended by Colwell in adjusted proportions would seem to be a significant advance.

Finally, public health agencies are conducting mass studies for glycosuria and hyperglycemia as a method of early diagnosis and public education for the control of the increasing incidence of diabetes.

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ADRENAL

A year ago Hans Selye summarized ten years' work on the adrenal hormones in connection with the alarm reaction. His work indicates that excessive amounts of the electrolyte controlling hormone of the adrenal cortex (desoxycorticosterone) will produce nephrosclerosis in animals indistinguishable from the disease in humans, and that this is associated with myocarditis. Fuller Albright of the Harvard Medical School and others have suggested that the gluconeogenic hormone of the adrenal cortex (corticosterone) through its protein catabolic function affects the immune globulin of the lymphoid tissue and is thus involved in resistance to infection. These two avenues indicate that the role of the adrenal in cardiovascular renal disease and immunity may be extremely important.

SEX HORMONES

There has been a great change of understanding of the sex steroid hormones as general metabolic agents throughout the body analogous to the adrenal hormones and as universal as thyroid or insulin. Albright has demonstrated the curative action of estrogen and androgen in osteoporosis following the menopause.

The striking repressive effect of high dosage estrogen upon prostatic malignancy and its metastases has recently been shown to have a converse analogue in the repressive action of high dosage of androgen upon breast cancer and its metastases. Grossly demonstrable regression takes place.

In the treatment of hypogonadism, chiefly the menopause, a great advance has occurred. In 1938 it was discovered that the addition of the ethinyl radical to the cyclopentanephenanthrene nucleus of estradiol would prevent the destruction of the hormone by the liver when given by mouth. The result is that amounts of estradiol of the order of magnitude of true hor-

mone dose can be given by mouth with complete biochemical effect throughout the entire body. Five-hundredths (0.05) or less—actually two-hundredths (0.02)—of a milligram once a day by mouth is the dose required for control of the menopause. Larger dosage for other physiologic action, such as suppression of ovulation or control of menorrhagia, is easily given. This steroid hormone does not cause nausea in the therapeutic dosage range as does stilbestrol which is not a steroid. As a result the shot treatment of the menopause is unnecessary and the unfortunate psychological effects of this form of therapy can now be avoided. In the male hypogonad states, methyltestosterone—especially in the tablet for oral absorption—can be used for adequate treatment. Shot therapy with male hormone is no longer necessary.

Other metabolic effects of androgen administration show the metabolic function of the hormone. E. Kost Shelton of Los Angeles has shown the nutritional value of protein anabolism in premature infants given testosterone. They grow and survive the critical period of prematurity better than untreated infants. Androgen is of advantage in some cases of Addison's Disease. The use of androgen in angina pectoris continues to find clinical support.

SUMMARY

In summary, then, what's new in endocrinology is the chemical identification of the pituitary hormones, the radioactive isotope of iodine for thyroid disease and thyroid cancer, the demonstration of hyperglycemia as one cause of diabetes, the connection of the adrenal cortex with cardiovascular renal disease and immunity, the preparation of the sex hormones in an extremely pure and potent form for oral use, and the recognition of the sex hormones as general body metabolic agents of great and varied function.

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What's New in Allergy*

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THIS presentation will consider: (a) Anti-histaminic drugs; (b) radon seed therapy in allergic disease of the respiratory tract; (c) treatment of penicillin and serum reactions.

ANTI-HISTAMINIC DRUGS

In 1927, Lewis⁴ postulated that a histamine-like substance, which he termed H substance, is liberated in the tissues at the site of an allergic reaction. Previously, in 1911, Dale and Laidlaw² claimed that the injection of histamine into animals produced typical anaphylactic shock. Since the appearance of those two reports, there has been much interest and activity on the part of chemists and other workers in an effort to discover an anti-histaminic substance which would serve as an inhibitor of both anaphylaxis and allergic reactions. Many such substances have been prepared and studied. In 1939, Halpern³ reported a preparation labeled 2399 R P, later named antergan. More recently, Bovet¹ and his associates reported a new derivative of this drug called neo-antergan, which is claimed to be more effective than antergan.

During the past two years, several new synthetic anti-histaminic compounds have been reported by workers interested in this field. The most promising of this group are pyribenzamine, (pyridil-N benzyl-N dimethylethyl lenediamine hydrochloride) and benadryl, (B-dimethylaminoethyl benzhydrol ethes-hydrochloride). In addition, several new and untried preparations are now in our possession, upon which there has been inadequate clinical investigation to justify a report at this time.

The dosage of the anti-histaminics varies greatly from individual to individual. The average adult dose will range from 100 to 300 milligrams, and in children from 50 to 200 milligrams, per day. It is our experience that children tolerate the drugs extremely well and in proportionately larger doses than do adults. They are most commonly given orally in the divided dose of 25 to 50 milligrams. It has been our practice to advise administration of the drugs in the evening and morning, because of the side effects.

Side effects of the anti-histaminics, in the order of their frequency, are drowsiness, weakness, stupor, confusion, vertigo, numbness, irritability, palpitation, hot flashes, indigestion, nausea, bad taste, dry mouth, blurred vision, and aggravation of allergic symptoms.

The toxic effects of the drugs are not particularly dependent upon the size of the dose. Symptoms produced by small dosages may be severe enough to warrant discontinuance. One cannot anticipate a pre-

dilection to toxic reactions. In general, response to the drugs is either very marked with a very definite relief of symptoms, or there is no effect whatever upon the symptoms. There is no intermediate effect.

RESULTS OF TREATMENT

Bronchial Asthma. Most observers are in accord that the anti-histaminic drugs have very little effect on bronchial asthma. In the pollen sensitive asthma, nasal symptoms may be controlled, but the asthma is not influenced. Several writers report the aggravation of symptoms by the drugs, and this was noted on several occasions in our own practice.

Hay Fever. The patient may receive symptomatic relief from the administration of these drugs. Such relief, when it occurs, is usually within a few minutes, but it lasts for a very limited period, usually three to eight hours. Such relief from symptoms bears no relationship to the dosage of the drugs. These drugs have been used either with or without specific pollen desensitization.

Allergic Rhinitis (Perennial). In this condition there has been less relief of symptoms obtained from the use of these drugs. Nasal blocking has not been influenced, particularly when nasal polypi were present.

Acute Urticaria. This is the field in which this group of drugs is most useful. Prompt and complete relief can be expected in from 5 to 15 minutes after they are administered. However, the drugs must be continued at intervals of three or four hours until the attack has expended itself.

Chronic Urticaria. Use of the drug in cases of chronic urticaria does not give the spectacular response observed in acute urticarias. Relief is obtained for only a few hours at most, and invariably there is a recurrence of the symptoms with discontinuance of the drugs.

Allergic Dermatitis. The drugs are definitely indicated to help control itching in both infants and adults suffering from the acute forms of this disease. In the chronic forms, relief from pruritis can be expected in about 50 per cent of the cases. Itching usually recurs with discontinuance of the drugs.

Penicillin Reactions. The drugs are indicated for the relief of itching, urticaria and arthralgia which may occur following the administration of penicillin. It may be necessary to continue the drugs over a period of weeks before the pruritis entirely disappears.

Both pyribenzamine and benadryl have been considered generally, since both drugs seem to have identical therapeutic values. Their side effects are the same, and their value as anti-histaminics in the management of allergic manifestations, with the exception of a few individual variations, seems to be the same.

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It is evident that these drugs are of limited value, because at their best they are only palliative remedies and do not produce permanent benefits. They are ineffective in many of the allergic manifestations. One should not minimize the toxic effects of these drugs and the many and frequent undesirable symptoms they may produce. Allergic investigation should be continued and specific allergic therapy be given during a period when anti-histaminic drugs are given for palliative relief.

RADON SEED THERAPY

Recently Ward⁶ and his co-workers reported a preliminary evaluation of the effect of radiation in the naso-pharynx in the treatment of proved cases of asthma in children. This report is based on a study of 34 children all under 14 years of age. This group did not respond to the usual allergic therapy, such as elimination of offending foods from diet, removing from the environment of offending agents, and specific antigen therapy. Examination of naso-pharynx revealed much adenoid hypertrophy and lymphoid tissue. This group of 34 children was treated by application of two gram minutes of radon to each side of the naso-pharynx once each month for an average of four treatments. After treatments were completed, observation of the naso-pharynx revealed complete disappearance of lymphoid tissue in 23 out of 34 cases. The period of observation was six months to four years.

As to the immediate effects of radon irradiation on the respiratory tract, many of those treated complained of sneezing and nasal discharge 12 to 48 hours after treatment. In a number of the children, asthmatic symptoms developed several days after the first or second radiation, and some of these attacks were severe.

The results: 15 patients (44 per cent) were completely relieved of asthmatic attacks; five (15 per cent) were relieved so that they have only an occasional mild attack; three (9 per cent) show moderate improvement—they still have attacks of asthma, with the severity of symptoms reduced to one-half; while 11 (32 per cent) obtained no relief.

Ward and his co-workers advance, as a theory of the action of radon on the asthmatic person, that radiation (1) removes lymphoid tissue from the naso-pharynx, thus reducing infections of the upper respiratory tract; (2) lessens secretions post nasally; (3) changes bacterial flora; (4) may possibly change the threshold of absorption of allergens from naso-pharyngeal tissue after lymphoid tissue has disappeared.

Those who conducted the study admit that in cases in which an allergic condition is demonstrably responsible for the asthmatic attacks, radon irradiation does not change the inherent allergic state.

As I have had no experience with this treatment, I will comment only on the rationale of it. It has been my experience, and that of others, that tonsillectomy and adenoidectomy have seldom, if ever, resulted in permanent benefits in the allergic child. On the con-

trary, it has been frequently observed that following operation the first attack of asthma may occur, or, if asthma has already been in existence, the attacks will become either more frequent or more severe.

One cannot believe that the lymphoid hyperplasia and obstruction in the naso-pharynx could possibly be the cause of asthmatic attacks. Believing that the lymphoid hyperplasia as nasal polypi are not the cause but the result of the allergic state, one is at a loss for a satisfactory explanation of how radon irradiation could influence the allergic constitution or other mechanics that enter into the production of asthma. It will be interesting to note a follow-up with a subsequent report on the present group over a period of another year.

Although the report indicates careful and painstaking studies on a group of 34 children in which a large number have benefited, an opinion born of experience is that the hope that such contributions as radon therapy will alleviate allergic ills, like many another hope, will be shattered in the test of time, and that only through the discovery of basic causes and basic mechanisms of the allergic constitution will there be a final hope for the eradication and cure of allergic ills. Moreover, there is the immediate consideration of the possibility that harm might result should there be promiscuous use of radon by otolaryngologists or others unless they are skilled in radon therapy.

PENICILLIN

It is now a common observation that in a fairly large percentage of cases in which penicillin has been administered, reactions may occur simulating the delayed serum reactions from blood substitutes and anti-sera. Like the serum reactions, these delayed penicillin reactions are characterized by urticaria, myalgia, arthralgia, fever, adenitis and petechial rash. In many of these cases, the usual therapeutic agents such as epinephrine, ephedrine, calcium gluconate, aminophyllin and the anti-histaminic drugs do not give relief. This is particularly true when the myalgia, arthralgia and occasionally trismus is very severe. It was in this type of reaction that State and Wagensteen⁷ explored the use of procaine intravenously. Their results were so surprising that this procedure was employed in all subsequent cases of serum disease. Urticaria of specific and non-specific origin, chronic bronchial asthma, rheumatoid arthritis and status angoosus were treated, with excellent results in urticarias and serum disease, but with no relief in bronchial asthma or rheumatoid arthritis. Our own experience with a small series of cases limited to serum disease and penicillin reactions was most satisfactory. We observed spectacular relief from symptoms, particularly the myalgia and arthralgia. This occurred within a few hours. Repetition of the treatment is frequently necessary because of a recurrence of symptoms. The greatest number of treatments given to any one patient was six and in one case a single treatment was sufficient to induce recovery. State and Wagensteen suggest the following technique for

administration: one gram of procaine HCl is dissolved in 500 cc. of isotonic solution of sodium chloride. It is given intravenously by the gravity method at a height approximately four feet above the bed level over a period of two hours. This prevents such untoward symptoms as dizziness, numbness, and flushing, which result from too rapid administration. A syringe containing amytal for intravenous administration should be available to control any sensitivity symptoms should they occur. We observed no symptoms of sensitivity.

If procaine is administered slowly, as has been suggested by State and Wagensteen, it is not particularly toxic. In view of the striking relief obtained by this therapy in our cases of serum disease and in the delayed reactions following penicillin therapy, we feel

that intravenous procaine is a definite contribution in the therapy of these conditions.

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Recent Advances in Pulmonary Diseases*

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IN the field of tuberculosis, one of the great diagnostic advances has been the widespread use of minifilm surveys of large groups of apparently healthy individuals. These surveys are being widely applied to the study of certain racial and economic groups where the incidence of the disease can be expected to be high. They are also being conducted quite generally in industry. A more recent application is the routine study by miniature chest films of all persons admitted to general hospitals. Experience has shown that between four and eight per cent of patients entering general hospitals for non-pulmonary complaints are found to have significant chest shadows requiring further study. Only a small fraction of these people were previously aware of disease of the chest. This procedure will give a much higher yield in positive findings than will routine urinalyses, blood counts, or Wassermann tests.

Many conditions other than tuberculosis are discovered in these mass surveys. Abnormal heart shadows, bronchogenic carcinoma, pneumonitis, bronchiectasis, and mediastinal and other thoracic tumors are also uncovered by such studies. Miniature film surveys have their limitations. It should be emphasized that a miniature film is only a screening procedure and not a diagnostic one. All persons who have abnormal findings by this method must have careful clinical, laboratory, and x-ray examination before a diagnosis may be made. Also, miniature films are not diagnostic for the early or moderate

stages of pneumoconiosis or silicosis. In industries suspected of these hazards, conventional films, preferably stereoscopic, are necessary.

The past few years have brought many refinements in the bacteriologic diagnosis of tuberculosis. No longer can we exclude tuberculosis by means of the Ziehl-Neelsen direct smear. If there is clinical or roentgenologic reason to suspect the disease, it may be necessary to resort to one of the more sensitive techniques for discovery of the organism. These include the use of gastric lavage, the washings of which are preferably combined with whatever sputum can be collected over a period of several days. The combined specimen should be studied by concentration, acid-fast culture, and animal inoculation. Occasionally it will be necessary to resort to bronchoscopic aspiration or lavage. Only by using these more sensitive procedures is it possible to establish a certified diagnosis at the earliest possible moment. Gastric lavage is also extremely useful in evaluating the progress of a case under treatment or observation. Periodic studies of this nature may detect an impending relapse long before it becomes manifest clinically or on the x-ray film.

Streptomycin is the most promising drug thus far found for the treatment of tuberculosis. It has been found most effective in acute exudative and ulcerative tuberculosis, also in acute hematogenous and lymphatic tuberculosis. Chronic fibrotic lesions of either bronchogenic or hematogenous type are influenced very little by this drug. Furthermore, streptomycin only temporarily suppresses the growth of the organism. After a comparatively short period of time, varying between two to six months, the bacilli

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become resistant to the antibiotic, although improvement may continue for a limited further period. It must be remembered that it is considerably more toxic than penicillin. There have been a few deaths due to renal failure apparently caused by tubular damage. Many patients have developed paralysis of the vestibular branch of the eighth cranial nerve, resulting in more or less marked disturbance of equilibrium. A considerable number of instances of deafness of varying degree have been noted. In some cases toxicity is now believed due to excessive concentrations of the chemical in the blood. The use of smaller doses and periodic determinations of the streptomycin blood level may reduce the incidence of toxicity.

While streptomycin shows great promise and has oftentimes been spectacular in its effect upon human tuberculosis, it does not replace the standard treatment principles of bed rest, optimum nutrition, collapse therapy, or pulmonary resection. It is only an adjunct to the time-proven methods of treatment. The use of it will not collapse cavities, resolve empyemas, or dilate bronchial stenoses. The drug does, however, often make it possible for collapse therapy or pulmonary resection to be carried out on patients who otherwise would be unsuitable for or apt to derive no benefit from chest surgery, and it minimizes the complications of these procedures.

Since the beneficial effect of streptomycin is only temporary, it should be used in close conjunction with other proven methods of treatment such as bed rest, collapse therapy or chest surgery. All too often, improvement resulting from streptomycin therapy is ultimately lost because established methods of treatment were not used in close coordination with it. The best results will be achieved if chemotherapy is only a part of a specific plan for the patient under treatment.

CARCINOMA OF THE LUNG

The great reduction in the surgical mortality of pneumonectomy for bronchogenic carcinoma now makes cure of this disease practical. It was only a few years ago that the operative mortality for this operation was from 50 to 75 per cent. In a series reported by Jones covering the past five years, the surgical mortality has been slightly less than four per cent—only two deaths in 54 consecutive patients operated upon. However, of the patients referred to the surgeon, only 35 per cent were clinically operable, and only 20 per cent were actually operable upon surgical exploration. Therefore, 80 per cent of the persons sent to the surgeon were beyond help. The surgeons and anesthesiologists have made far greater advances in the operative treatment of bronchial cancer than the clinicians have made in the early diagnosis of the disease. The operative mortality has been reduced to a minimum, but the "diagnostic mortality" continues to be excessively high.

The more widespread and routine use of chest x-rays will be of great aid in suggesting a diagnosis of lung cancer. Bronchoscopy should be done in every case suspected of the disease. Nevertheless, a

negative bronchoscopy does not by any means rule out carcinoma. About half of the patients with operable lesions can be diagnosed by bronchoscopic biopsy. In the other half the decision to explore the chest must be based upon the clinical and x-ray evidence. If the clinician can make a presumptive diagnosis of carcinoma, he should stand his ground and advise exploratory thoracotomy before it is too late. This procedure of itself is harmless and carries no operative mortality.

BRONCHIECTASIS

The medical management of bronchiectasis has been greatly enhanced by the advent of chemotherapy. The use of sulfonamides by mouth, particularly after acute respiratory episodes, and the administration of antibiotics, especially penicillin, and occasionally streptomycin, both parenterally and by nebulization, have done much to suppress infection and control sputum in bronchiectasis. These drugs should not be used haphazardly, but only after careful examination of the sputum to determine the type of organisms predominating. In some instances the disease can be converted into a "dry" bronchiectasis which will remain asymptomatic until the next respiratory infection.

The only real cure for bronchiectasis is lobectomy or pneumonectomy of the involved lung. Unfortunately most patients are found to have bilateral disease, and are apt to have inoperable lesions when they are first seen by the chest physician or surgeon. Here again, early diagnosis is the crux of the problem. The complications and the mortality of operation have been greatly reduced in recent years. Advances in anesthesia and in the technique of operations on the chest are partly responsible for this improvement. The use of sulfonamides and antibiotics pre- and postoperatively, and their topical use at the time of operation, along with improved methods of closing the bronchial stump, have greatly reduced the complications of empyema and broncho-pleural fistula which were formerly so very frequent. These improvements have made it feasible to close the chest tightly at the time of operation and to secure early re-expansion of the remaining lung, thereby preserving a greater degree of pulmonary function than was heretofore possible. It is hoped that eventually bilateral or multi-lobar resections will be feasible in selected cases of bilateral bronchiectasis.

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DISCUSSION AND QUESTIONS AND ANSWERS

DR. SMART: The first question: "What is the value and feasibility of bronchial secretion smears for the diagnosis of carcinoma?"

In every case where carcinoma is suspected, and where nothing which can be biopsied is found bronchoscopically, secretions should be aspirated and studied cytologically. Frequently the diagnosis can be made in this way. You may have seen the report which Dr. Clerf made at the A.M.A. meeting in 1946 upon the use of this technique. However, a negative result by this method does not disprove a presumptive clinical diagnosis of bronchial carcinoma, and if the clinical and x-ray evidence strongly favor such a diagnosis,

then exploratory thoracotomy should be done. Usually the thoracic surgeon will be able to make the diagnosis once he is able to palpate the lesion. He can then proceed with resection if the lesion is operable.

Second question: "How does streptomycin act on the tubercle bacillus?"

We know that the drug is bacteriostatic, and not bacteriocidal for the bacillus. We do not know just how it inhibits the growth of the organism.

Next question: "What about the use of streptomycin in the treatment of endobronchial tuberculosis?"

Streptomycin has proven extremely effective in the treatment of ulcerative tuberculous tracheo-bronchitis. Before the advent of this drug, we had no satisfactory treatment for this most serious complication. Ulcerative lesions of the epiglottis, larynx, trachea, and bronchi have been noted to heal in as short a time as three weeks. These remarkable results have been achieved by using the drug either by inhalation or parenterally. The latter method is preferred, especially if there are parenchymal lesions which one hopes to affect. Furthermore, the topical use of streptomycin is more likely to produce sensitization to the chemical.

The next question: "How would you select your tuberculous cases for lobectomy or pneumonectomy?"

This is an important question, and one that could make an entire paper by itself. There is no doubt that pulmonary resection has a very definite place in the treatment of tuberculosis. However, this place is somewhat limited and we must remember that even with the aid of streptomycin both pre- and postoperatively, the surgical mortality and the complications following pulmonary resection for tuberculosis have been, up to the present time, considerably greater than in the case of resection for carcinoma. I believe that the re-

sults from this procedure in the treatment of tuberculosis will be greatly improved as the indications are more carefully worked out and cases are more ideally selected. In my own small series of 13 patients, seven of whom had pneumonectomy, and six lobectomy, all operated upon by J. C. Jones and associates, there has been no surgical mortality, and no serious complications such as empyema, broncho-pleural fistula, or contra-lateral spreads. These patients were carefully selected, and many of them had the benefit of streptomycin before and after operation. In each instance it was felt that there was no other satisfactory treatment for the specific lesion present.

In general, the following types of cases should be considered for pulmonary resection: (1) those in which there are giant cavities, such as an excavation of an entire lobe or an entire lung, with a good contra-lateral lung; (2) the so-called "blocked" or partially blocked cavity is better treated, in my mind, by lobectomy, and occasionally by pneumonectomy; (3) a lobe or a lung which is the seat of tuberculous bronchiectasis is better treated by pulmonary resection than by collapse therapy; also, post-tuberculous bronchiectasis, where the tuberculosis is healed but the bronchiectasis remains, is better treated with resection than any type of compression therapy; (4) occasionally we see cases of repeated and intractable pulmonary hemorrhage from a lobe which is apparently adequately collapsed by means of thoracoplasty, which can be successfully treated only by resection; (5) in cases in which the bronchus supplying a lobe or a lung shows a high degree of stenosis, with or without atelectasis, resection should be considered, providing the bronchoscopist feels that the bronchus is healthy enough to insure good healing of the stump. Other indications for pulmonary resection in tuberculosis will develop as we attain more experience with this new but valued procedure.



What's New in Infectious Diseases*

HOBART A. REIMANN, M.D., *Philadelphia*

THE most important development of recent years in the field of infectious diseases was the introduction of sulfonamide compounds, penicillin and streptomycin which makes the present an era comparable in importance to that of Pasteur's time. So rapid has progress been that specific immune serums used for several serious infectious diseases were superseded by sulfadiazine therapy, which in turn was largely replaced by penicillin, all within the past decade. On the other hand, much of sulfonamide drugs and penicillin is wasted in conditions for which they have no value and for which they should not be given. Both sulfadiazine and penicillin at times cause trouble in the form of toxic and hypersensitive reactions and must be used with caution and judgment. Streptomycin has been disappointing in its failure to control typhoid and undulant fever, but it has value in certain other infections caused by bacteria not influenced by penicillin or sulfadiazine, particularly tularemia, tuberculosis and certain infections of the urinary tract. No specific treatment has been discovered for viral diseases.

Great increases of knowledge have been made in the viral diseases. They are now known to cause many more diseases than was formerly realized, particularly with regard to infections of the brain, the viral pneumonias, viral infections of the intestine (viral dysentery), of the liver (viral hepatitis), of the myocardium, and probably of the kidney (abacterial pyuria). The world-wide distribution of troops led to much new knowledge of malaria, cholera, dysentery, viral hepatitis, the rickettsial diseases and others. An ominous development was the preparation for aggressive and defensive biologic warfare. Intensive study was made to discover infectious agents capable of causing widespread disabling or fatal infections of man. Fortunately, no practical application has as yet been made. It is probable that more effective agents for biologic warfare are agents which cause epidemic diseases of domestic animals and food producing plants.

Accumulating evidence shows how BCG vaccine provides immunity against tuberculosis. Studies on the Indians of the Southwestern states and reports from Scandinavian countries show that the morbidity of tuberculosis is reduced among the vaccinated persons as compared with those not vaccinated. Para-aminobenzoic acid is a valuable therapeutic agent for typhus and Rocky Mountain spotted fever.

More detailed information concerning the new

developments just discovered and others as well is given in Annual Reviews of Progress in Infectious Diseases.¹

QUESTIONS AND ANSWERS

DR. REIMANN: Question: "Who reported the use of streptomycin therapy in dysentery bacillus infection, and just what were the results?"

The report was published I believe in December, 1946, in the Bulletin of the Army Medical Department. It was about that time at least and the results were reported, I believe, in only 11 cases with a favorable effect in eight.

Question: "How efficient are the sulfa drugs in the prophylaxis of relapse of rheumatic fever attacks?"

According to those who have applied this procedure, the incidence of relapse has been reduced, ostensibly due to the prevention of infections with hemolytic streptococci which incite attacks of rheumatic fever. However, others have questioned the validity of the statistics. There are other objections as well: (a) if the procedure is successful it must logically be continued during each cold season for many consecutive years, (b) prolonged therapy carries the risk of toxicity and sensitization, and of causing the development of drug-resistant strains of bacteria. Recent trial in England of penicillin given for the same purpose in only a few patients was said to be successful in reducing the number of relapses, but here again, prolonged therapy is subject to risks similar to those just mentioned.

Question: "Is there any therapy for the vertigo which occurs after prolonged use of streptomycin?"

No; the only treatment is to discontinue the drug.

Question: "With what drug or antibiotic would you treat streptococcal sore throat?"

In the vast majority of cases, which are mild anyway, no drug is necessary. Carefully controlled studies by Rantz's group and others show that neither sulfonamide compounds nor penicillin were useful enough in the average case to warrant their use. In severe cases with high fever, severe illness, cervical lymphadenopathy, and certainly if the blood stream is invaded, penicillin in adequate amounts over six days or more is recommended. The necessity for giving penicillin depends on clinical judgment.

Question: "May not the use of antibiotics in infectious fevers be overemphasized?"

Without doubt. It has been estimated that 80 per cent of penicillin now used is wasted for conditions in which it is known to have no effect; in cases which are undiagnosed; justifiably at times when the diagnosis is uncertain, and for other reasons.

Question: "Do you favor antipyretic therapy?"

Antipyretic drugs, as such, are no longer recommended for antipyresis alone, except in unusual instances of hyperpyrexia. Even then their toxic effects must be considered. Fever is best controlled by specific therapy with antibiotics or sulfonamide compounds when the causative agents are susceptible, or by physical methods of tepid or cool sponge baths.

REFERENCE

1. Reimann, H. A.: Infectious diseases. Twelfth Annual Review of Significant Publication, Arch. Int. Med., 78:447-494 (Oct.), 1946. Thirteenth Annual Review, Arch. Int. Med., to be published, 1947.

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Early Personalities and Hygiene at the University of California

RICHARD ARTHUR BOLT, M.D., Dr. P.H., Berkeley

THE importance of Hygiene as a special subject in the curriculum of the University of California has been recognized since the very beginning of the University. In the prospectus of the opening exercises at the University in the old buildings of the College of California in Oakland on September 23, 1869, courses in "Physiology and Hygiene" were announced as required both in the College of Letters and College of Agriculture. These courses were given to the students of the "Fourth Class-First Year" during the "second and third terms."

The College of Oakland which had been established in 1853 by Henry Durant merged into the University of California by approval of the Governor on March 23, 1868, and instruction began in Oakland in the autumn of 1869. Henry Durant became first president of the university. He was Professor of Greek, and the Register of the University for 1870 states that "Mental and Moral Philosophy is given to the most advanced classes in all the Colleges of Arts and the College of Letters, by the President of the University. Recent textbooks are used, supplemented by lectures." Dare we conclude that elements of what we now call "mental hygiene" were included in those early lectures?

The Registers of the University carry announcements of courses in "Hygiene and Physiology" and "Mental and Moral Philosophy" from 1870 to 1876. While no direct mention is made of the professor giving these early courses, it is implied from a part of his title that Dr. John LeConte, "Professor of Physics, Industrial Mechanics and Physiology," may have had a hand in their inception. Dr. LeConte is mentioned in the Register as a member of the Faculty of the Medical Department of the University.

In the Biennial Report of the Regents of the University for the years 1872-73, when Daniel C. Gilman was president, it is stated that "Lectures at the Mechanics' Institute in San Francisco are given by Dr. Ezra S. Carr, Lecturer on Physiology and Professor of Agriculture, Chemistry, Agricultural and Applied Chemistry and Horticulture." Two lectures are mentioned: one on "What We Breathe" and another on "What We Drink and What We Eat." "A similar course of lectures was also given at the Normal School in San Jose and several of the Professors also lectured in other parts of the State." This was probably the beginning of extension courses from the University and it is interesting to note that at that early date they dealt with subjects relating to Hygiene.

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The University Register for 1870 also records under "terms of admission"—"YOUNG LADIES: Young ladies are admitted into the University on equal terms, in all respects, with young men." It is refreshing to learn that young women were exposed to these compulsory courses in Hygiene in Mid-Victorian fashion from the early days of the University.

In 1870 a commanding figure in the annals of public health in California appeared on the scene in the person of Thomas M. Logan, M.D., who became the first Secretary of the California State Board of Health. In the April 15, 1945, issue of "California's Health," Guy P. Jones, retiring as Editor after serving with the State Department of Public Health for 23 years, wrote a delightful and informative article on "Hygiene Taught at the University of California in 1873" in which Dr. Logan played a leading role. This article, if read in the setting of other excellent articles in the series by Guy Jones entitled "Early Public Health in California," reveals the profound influence of Dr. Logan upon the development of Hygiene at the University as well as his grasp of the principles of public health. In his first biennial report for the years 1870-1871, issued in the name of the State Board of Health, he reveals that he had not only a firm grasp upon the principles of public health and hygiene, but also considerable administrative ability.

In his second biennial report for 1871-73, Dr. Logan, under date of July 1, 1873, addressed Governor Newton Booth as follows: "It affords me unqualified satisfaction to be able to state that in compliance with the expressed wishes of the indefatigable President of our State University [President Gilman who later became the first President of the Johns Hopkins University] the Regents have taken the initiative, not only in establishing a Professorship of Sanitary Science in the curriculum of the Medical Department, but also propose making it a part of this professorship to give such instruction to the students in the academic department, so that every graduating class can go out properly informed in the great art of preserving the individual and the public health." In this same report Dr. Logan presents a "Synopsis of special subjects constituting a course of lectures on Sanitary Science and its collaterals, proposed to be delivered during the junior and senior years of the students in the University of California, both in the academic and medical departments."

"STATE MEDICINE" IN 1873

In going over my old files I discovered a memorandum prepared in April, 1926, by Guy P. Jones

for Dr. John N. Force, in which he sets forth in considerable detail the various sections of the above Synopsis. It is very interesting to find that attention is to be given to "Laws of the Relations of Sex," "Mental Hygiene," "Domestic Hygiene," and "Public Health or State Medicine." Let us not entertain the idea that State or "Socialized Medicine" is a modern concept, as Dr. Logan in 1873 said "State, or as sometimes termed, political medicine, concerns itself but little relative to the cure of disease; the problem which it seeks to solve, is how disease may be averted; general conditions affecting health of communities or classes of people. . . ."

On June 2, 1873, Dr. Thomas M. Logan, then Secretary of the State Board of Health, was invited to accept the Chair of Hygiene in the Medical Department of the University, concerning which his brother wrote, "The Chair was created expressly for him." On July 1, Dr. Logan reported this to the California State Board of Health.

In the University Register for 1873-74, President Gilman announced under the section on "Medical School" that "the recent gift of a Medical College through the munificence of Dr. H. H. Toland of San Francisco will soon lead to the establishment of the Department." The influence and recommendations of Dr. Logan bore fruit almost immediately for we find in the Biennial Report of the Regents for 1873-74 under the announcement of the College of Medicine that he is listed with the members of the medical faculty as "Professor of Hygiene" and provisions for the courses which he recommended were being carried out. The following books were recommended for the hygiene courses: Huxley's and Youman's "Physiology and Hygiene," Parks' "Manual of Practical Hygiene," Hammond's "Treatise on Hygiene," and Mapother's "Lectures on Public Health."

That Dr. Logan's early efforts were recognized and appreciated is attested by the fact that he was selected to give the Valedictory Address at the Commencement Exercises of the Medical Department held in Pacific Hall, San Francisco, on October 29, 1874. In the course of this address pregnant with sage advice, he said, "While occupying, during the term just closed, the Chair of Hygiene, which was, through the wisdom of the Regents, and in accordance with my suggestions to the American Medical Association in 1871, constituted a requisite part of the curriculum preliminary to the Diploma now awarded you, while occupying this Chair, it has been my special province to explain the application of the laws of physiology and general pathology to the maintenance and improvement of the health and life of individuals and communities under the increasingly complex conditions of human existence."

Dr. Logan apparently held the Chair of Hygiene in the Medical Department until his death in 1875 when he was succeeded by Dr. F. W. Hatch, Professor of Principles and Practice of Medicine at Toland College of Medicine, who had taken his place as Secretary of the State Board of Health.

In the Biennial Report of the Regents of the

University for 1877-79 under the Faculty of the College of Medicine appears the name of "F. W. Hatch, A.M., M.D., Professor of Public Hygiene." The University Register for 1878-79 announced that "The Science of Hygiene, which of late years has assumed so important a place in the curriculum of a medical education, has induced the Board of Regents to establish a Chair of Public Hygiene. The Permanent Secretary of the State Board of Health has been selected to fill this Chair." Accordingly Dr. F. W. Hatch was appointed "Professor of Public Hygiene."

The University Register for the following year (1879-80) records that "the course on Public Hygiene is a most interesting one, covering the whole subject of the duties of individuals and municipalities in the preservation of the Public Health." The course in "Hygiene" was announced each year in the University Registers from 1879-80 until 1884-85 as given by Dr. Hatch. The University Register for 1884-85 announced under the heading "Medicine and Surgery" the subject "Hygiene:—the principles of modern sanitary science and the practical methods of reducing the evil effects of unsanitary conditions. 32 lectures." "This Chair is now vacant through the death of Dr. Hatch." Dr. Hatch, therefore, continued to give the course in "Public Hygiene" until his death in 1885 when the Chair was declared vacated and apparently not filled again until 1898.

PHYSICAL CULTURE

From 1885 to 1890 courses in Hygiene, consisting almost entirely of didactic lectures were given in the Medical Department by Professor Washington Ayre. The University Register for 1888-89 chronicles the beginning of a "Physical Culture Department" at Berkeley, and states that, "the details of the Department are not yet arranged, but the intention is to require systematic exercises for the first two years of college. There will be general class exercises adapted to all conditions, and special training suited to the wants of those with deficient development."

"Physical Culture is in charge of an instructor in gymnastics, under the supervision of an experienced physician and its work is conducted in Harmon Gymnasium on the University Grounds. Dr. Payne, the Director of the Department examines the physique of each student and prescribes such exercises as benefit his condition." "Mr. Walter Magee, a trained instructor is in personal charge of the exercises in the Gymnasium." That hygiene was taught incidentally in this new department is to be inferred from the following announcement in the 1890-91 Register: "Physical Culture. Dr. Payne, Director of the Department. He makes a thorough physical examination of each student, conducts the taking of measurements, prescribes his exercise, and gives personal advice in matters pertaining to health and hygiene."

Courses in "Physical Culture" were announced each year in the University Registers from 1891-92 to 1893-94 with incidental mention of "Hygiene" taught in this department. No mention of "Hygiene," however, is made in the Register for 1894-95, but

an important announcement appeared that "Mary Bennett Ritter, M.D., is woman physician in the Department of Physical Culture." On June 30, 1891, Dr. Bennett married Professor William E. Ritter, who had a long and distinguished career in scientific pursuits at the University. Both of these individuals contributed a great deal to the scientific work of the University, some of which related to hygiene and public health.

In the University Register for 1895-96 under the caption of a "Course for young women" in the "Department of Physical Culture" it is stated that "During the year Dr. Mary B. Ritter will give to the women of the University an optional course of lectures upon the following subjects: (1) General Hygiene. The various functions of the human body. (2) Prevention of disease; aids to the injured; disinfection; avoidable deformities." In this Register appears for the first time the name of George F. Reinhardt, Assistant in Physical Culture, who was to play such an important role in the development of Hygiene at the University and in the beginnings of the Student Health Service.

No course in "Hygiene" was mentioned as being given by Reinhardt during this year, but the following years (1896-97) the Register announced: "Physical Culture. Lectures will be given by medical and surgical specialists on normal vision, hearing, personal hygiene, first aid to the injured, practice in bandaging, etc. Practical talks on diet, sleep, exercise, bathing, clothing, injudicious exercise, etc. will be given by the Director. . . . During the year Dr. Ritter [Mary B.] will give to the women of the University an optional course of lectures" (largely personal hygiene). "W. E. Magee, Assistant Professor, Director of Physical Culture, George F. Reinhardt, B.S., Assistant in Physical Culture."

It is seen that up to 1898 "Hygiene" had been given as a desultory course in various departments of the University. In the University Register for 1897-98 it was announced for the first time as a special subject in the curriculum as "12. Hygiene—a course of lectures on personal hygiene as related to physical culture. The subjects considered will include food, clothing, baths, sleep, care of the eyes, testing for normal vision and hearing, and the general care of the body. During the year lectures and demonstrations will be given on what should be done in case of accident. 1 hour. Second half." This course was offered under "Physical Culture" with the following teachers: "Arnold Abraham D'Ancona, A.B., M.D., Professor of Physiology and Histology and Medical Examiner and Lecturer in the Teacher's Course in Physical Culture; George F. Reinhardt, B.S., Assistant in Physical Culture." Dr. Reinhardt received his M.D. degree in 1900.

In the year (1898-99) Hygiene 12 was repeated except that it was extended to one hour throughout the year, and Dr. D'Ancona was appointed "Professor of Hygiene." Dr. Mary B. Ritter was announced to give an optional course of lectures for women. Up to 1905, courses in hygiene continued to be given in the "Physical Culture Department," whose name

was changed that year to "Department of Physical Education."

In 1902 an advanced course had been given in Hygiene with laboratory work, microscopic and macroscopic examination of tissues and simple tests for impurities in air, water, and food. This course included household sanitation and plumbing. The course was given as 9A Bacteriology by Dr. A. P. Ward from the Agriculture Department. In 1903-1904 Dr. George F. Reinhardt was "Medical Examiner" and "instructor in Physical Culture." In 1904 he was appointed "Professor of Hygiene" and a separate Department of Hygiene was created which included Bacteriology. Dr. Ward who had been appointed Director of the State Hygienic Laboratory on the Berkeley Campus, and who had been giving courses in pathology and dairy bacteriology in the Department of Agriculture, was attached to the new Department of Hygiene. The curriculum in hygiene at that time included freshman hygiene for both men and women and two courses in bacteriology.

An important announcement appeared in the Register for 1904-05 as follows: "Hereafter students who are absent from any University exercise on account of illness must report to the Medical Examiner for a certificate of illness. This certificate the student must present to the Dean of the College." Professor George F. Reinhardt is mentioned as Medical Examiner for men. He is also announced as giving a one hour prescribed course in "Hygiene" throughout the year. Dr. Eleanor Storb Bancroft, M.D., is also mentioned as Lecturer in Hygiene and Medical Examiner for women. She gave a one hour course in Hygiene throughout the year, prescribed for all freshman women. During the next five years there were only minor changes in the hygiene curriculum.

Charles Gilman Hyde came into the Public Health and Sanitary Engineering field of the University in July 1905 when he accepted an appointment on the Engineering Faculty. Since 1909 he has held the Professorship of Sanitary Engineering in the University and has contributed materially to the development of Hygiene and Public Health as well as his own field of Sanitary Science. His cordial cooperation with the Department of Hygiene throughout all the years is an index to his sterling character and loyalty to high ideals of Public Health and Hygiene.

INFIRMARY ESTABLISHED

It should be noted that in 1906 Dr. George F. Reinhardt who was then Professor of Hygiene became the first University physician and established the University Infirmary, one of the first to be established on such a broad foundation in this country. After the San Francisco earthquake and fire in 1906 the laboratory branches of the University Medical School were removed from San Francisco to the Berkeley Campus. On December 4, 1909, Dr. Reinhardt married Aurelia Henry of Berkeley who later pursued a distinguished career as president of Mills College, and as a leader in civic and national affairs.

In 1910 Dr. Ernest B. Hoag became a member of the Hygiene Department and introduced courses in

school and public hygiene. At that time seven courses in bacteriology were offered and separate courses in milk, water, sewage disposal, infectious diseases, soil analysis, medical bacteriology, and research were announced.

The year 1911 may be considered as ushering in the revised and expanded curriculum in public health and school hygiene. At that time the public health major was established. Courses were offered in several departments of the University for this major, but ten units had to be taken in the hygiene department. Dr. John N. Force came to the faculty that year and he, together with Dr. George F. Reinhardt and Dr. Wilbur A. Sawyer, organized courses in public health laboratory, sanitary surveys, epidemiology, and public health administration. In 1911 bacteriology as a subject was separated from hygiene and the Department of Pathology and Bacteriology was created.

The State Hygienic Laboratory and the Departments of Hygiene and of Pathology and Bacteriology were housed in the same frame building on the Berkeley campus. The State Hygienic Laboratory was intimately associated with the Hygiene Department at that time and a cordial cooperation has always been maintained between them. Dr. Wilbur A. Sawyer, who was a member of the Infirmary Staff and had been appointed Director of the Laboratory, gave several courses in the Hygiene Department.

The announcement of courses of the University for 1911-1912 contains such an important development in Hygiene that it is given special mention here:

Staff:

George F. Reinhardt, B.S., M.D., Professor of Hygiene and University Physician.

Wilbur A. Sawyer, A.B., M.D., Director of State Hygienic Laboratory.

John N. Force, M.D., M.S., Lecturer in Hygiene.

Florence M. Sylvester, B.L., M.D., Lecturer in Hygiene.

Albert M. Meads, M.D., Infirmary Physician.

Romilda Paroni, B.S., M.D., Lecturer in Hygiene and Medical Examiner.

Eugene S. Kilgore, B.S., M.D., Medical Examiner.

Jacob C. Geiger, M.Ph., M.D., Assistant, State Hygienic Laboratory.

Teacher's Certificate: 18 units of upper division in applied courses bearing on hygiene.

Sanitary Inspection: 26 units of upper division work.

Professional Course in Public Health: The department has arranged a course of study equivalent to that which leads to the degree of Doctor of Public Health or Diploma in Public Health in many European and several American universities. (The Academic Senate has now under consideration the question of granting a degree in public health.) Courses open to students holding a degree of B.S. or its equivalent from a recognized college or university and requires the completion of 60 units in hygiene, sanitary engineering, nutrition, and allied subjects. Persons holding professional degrees in medicine or sanitary engineering may reduce this requirement to 18 units in hygiene or allied subjects. A thesis is required in all cases.

During the next few years the requirements for students majoring in hygiene were changed consider-

ably. The major courses themselves were altered as well as the prerequisites. The class of 1915 was the first class to carry a four years' program of a hygiene major and the class of 1916 the first class to the M.A. degree in Public Health. That year the M.A. (P.H.) degree was granted for the first time. The first candidates to receive the Gr. P.H. degree in 1915 were Frank L. Kelly, Harold F. Gray, William Colby Rucker, Helen Beckwith and John Nivison Force.

It is of considerable interest to recall that the first summer session courses mentioned in connection with hygiene were given in 1908 by Assistant Professor Ward: "(1) Bacteriology of Food Products, and (2) Bacteriology of Infectious Diseases." The summer session courses for 1909 show further development: "(1) A two unit course in School Hygiene given by Dr. Ernest Bryant Hoag, Medical Director of Berkeley Schools and Lecturer in Hygiene at the University. (2) Medical Inspection in Schools by Dr. Hoag. This course planned for physicians, nurses and school inspectors. (3) A two unit course in Elements of Bacteriology by Miss Margaret Henderson and (4) Bacteriological Diagnosis by Miss Henderson" who worked in the State Hygienic Laboratory. It may not be out of place to record the romance which developed in that laboratory culminating in the marriage of Margaret Henderson to Dr. Wilbur A. Sawyer, October 14, 1911.

In May, 1910, Dr. A. R. Ward resigned as Director of the Hygienic Laboratory to accept an appointment in the Philippines. The California State Board of Health Monthly Bulletin for July 1910 states that "Dr. Wilbur A. Sawyer, a physician of experience and a member of the Medical Faculty of the University of California, has been appointed his successor." In the same issue of the Bulletin appears an article by William B. Herms of the College of Agriculture on "How to Control Mosquitoes, with special reference to anopheles." The Register of the University for 1908-09 under "Courses in other Departments" had announced that Assistant Professor Herms was offering a course in "Medical Entomology."

The 1909-10 announcement for summer session courses in 1910 mentions for the first time a "Summer Session at Los Angeles Medical Department," with a caption of "Department of Hygiene, State Medicine and Medical Jurisprudence." Dr. George H. Kress, B.S., M.D., is given as Professor of Hygiene and Dr. L. M. Powers, M.D., Lecturer on Public Health and State Medicine, and these two together with Gurney Newlin, Esq., are announced as giving summer session courses in Los Angeles on "Hygiene, State Medicine, Medical Economics and Medical Jurisprudence."

John Nivison Force, a former student of Dr. Robert T. Legge, who taught in the Medical School subjects of Pharmacology and Materia Medica Laboratory, joined the hygiene faculty in 1911 and rapidly came into prominence in the department. Publications of his soon began to appear in the literature. In the California State Board of Health Monthly Bulletin for May 1911 appears an article on "The Need for Vision in Public Health." This was the title of an

address given before the Collegiate Alumni of San Jose. The subtitles to this article are of special interest in view of Dr. Force's advancement in the field of Hygiene and Public Health. They are: (1) "The History of Preventive Medicine should be Taught." (2) "The Inherent Rights of the Child." (3) "Importance of Sanitary Factors." (4) "The Faults of Laws." His article on "Public Health in the Summer Session of the University of California" in the May 1911 issue of the Bulletin is worth abstracting as follows: "Courses in Public Hygiene and School Hygiene which were first given as a single course in the session of 1909, in the session of 1910 two lecture courses in hygiene were given while in the coming session [1911] . . . five courses in hygiene, three in medicine and 26 in physical education have been announced. The Departments of Hygiene and Medicine together offer courses of special interest to health officers, medical directors of schools and teachers of hygiene. The Department of Physical Education opened last year [1910] a model playground and commenced instruction in this comparatively modern subject." About this same time a course in First Aid to the Injured was given to Berkeley Police. Dr. Force conducted this course by

illustrative demonstrations and quizzes with the assistance of Dr. Hoag and Dr. Sawyer.

Dr. Reinhardt died June 7, 1914. President Wheeler appointed Dr. Robert T. Legge in 1915 to the position of "Professor of Hygiene and University Physician," a position he retained until his retirement in 1943. Dr. Legge gave various courses in hygiene, his special interest being in industrial and school hygiene. He was largely responsible in drawing up the plans for the Cowell Memorial Hospital and in seeing it through to completion. He also developed the Students' Health Service and placed it on a firm foundation.

The September 1915 Monthly Bulletin of California State Board of Health announced that at the last meeting of the State Board: "The office of Secretary of the Board left vacant by the resignation of Dr. Donald H. Currie, was filled by the election of Dr. Wilbur A. Sawyer." Dr. Currie went back to the U. S. Public Health Service. The same Bulletin announced that J. C. Geiger, M.D., was Epidemiologist and Acting Director of the Bureau of Communicable Diseases, State Hygienic Laboratory, Berkeley; William B. Herms, M.S., Consulting Parasitologist, and Frank L. Kelly, M.D., Bacteriologist.



Plastic Surgery of the Nares

GEORGE V. WEBSTER, M.D., *Pasadena*

THE nares appeared early in the phylogenetic development of the animal kingdom and vary from the simple olfactory pits of the primitive fishes to such highly specialized development as the trunk of an elephant. In man, the appearance and function of the nares are more important than the olfactory

sense, although reflex alteration in the diameter of the nares is easily demonstrable in the presence of strong odors.

Appearance of the nares has much to do with the pleasing appearance of the face. From a sculptural standpoint, the delicate "winged buttress" construc-

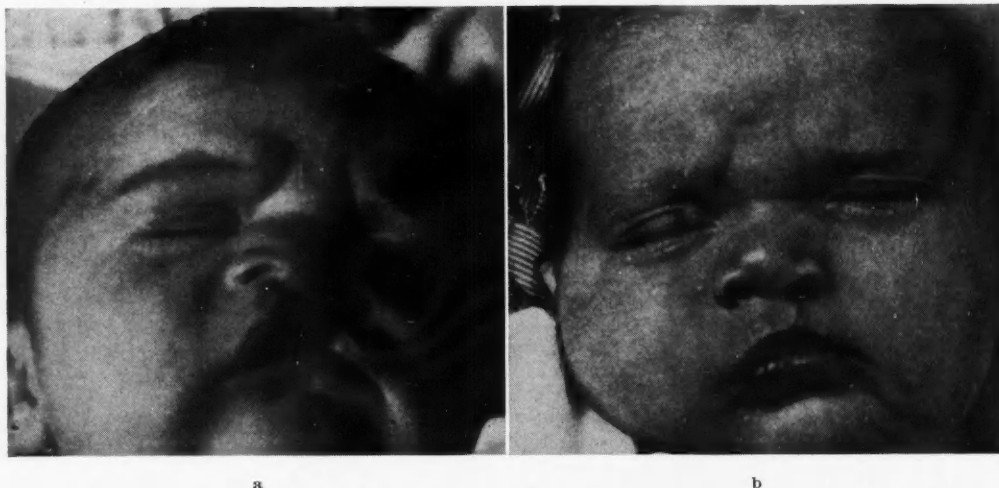


Figure 1.—(a) Congenital cleft-lip showing extreme deformity of left naris. (b) Reconstruction of a normal naris at time of repair of cleft-lip.

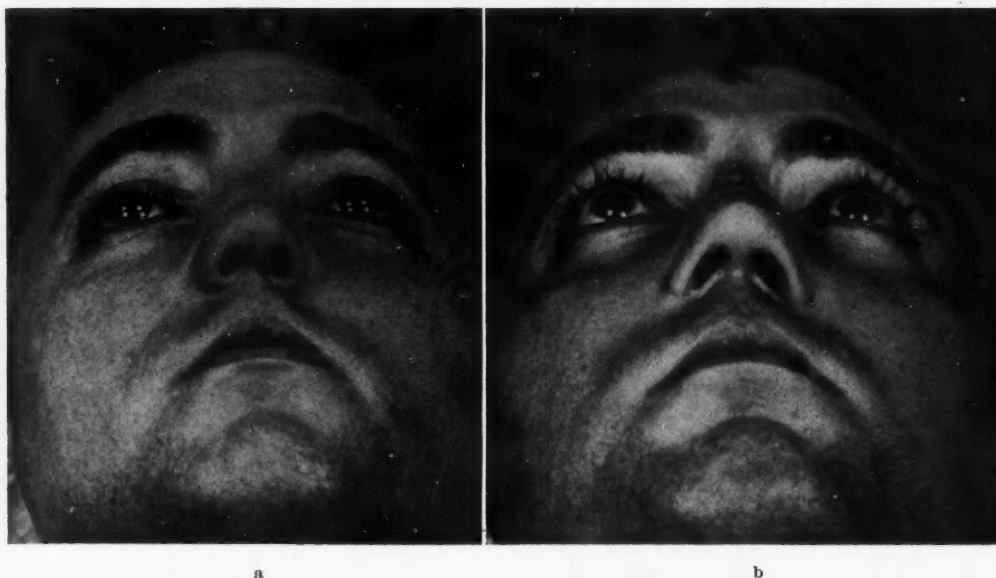


Figure 2.—(a) Congenital micronares. This patient experienced difficulty in breathing. (b) Relief of stenosis of nares by the use of thick-split skin-graft.

tion of the external nares is especially important in the beauty of the normal nose. The great sculptress, Malvina Hoffman, has recorded myriads of racial, national, and tribal variations of the nares in her remarkable collection of sculpture, modeled from life in many countries throughout the world and preserved in bronze in the Field Museum of Chicago. The major continental variations such as African, Asiatic, and European types, are well recognized by the most casual observer.

Alterations in appearance of the nares occur with changes in emotion. The nares are thus essential elements in the production of facial expression. The alae are raised in laughter, dilated in heavy breathing, narrowed in distaste, and the entire tip is raised in scorn, wrinkling the skin over the nose. The nares are widely dilated with violent effort, droop with fatigue, and are elevated and widely dilated when gasping for air in exhaustion. Their calibre changes in synchrony with each respiration except during quiet breathing.

The function of the nares, in addition to those mentioned above, is the regulation of the temperature and rate and direction of flow of the stream of inspired air. In addition, a moderate screening effect is produced by the nasal hairs. The vibrissae, which play such an important tactile role in other mammalian species, are rudimentary or absent in the human.

CONGENITAL DEFORMITIES OF THE NARES

Malformations of the nares occur with relative frequency and vary from the extreme deformities associated with cleft-lip (Fig. 1) to simple familial or individual unsightliness. Plastic surgical correction is indicated to aid in establishment of the patient's social and economic equality with his normal contemporaries. The sense of inferiority, which often

is associated with a poor cosmetic appearance of the nose, can be extremely disabling in sensitive individuals.

Although considerable variation in size of the nares can occur without impairment of breathing, one occasionally sees nares which are so small as to cause mouth breathing and other symptoms of an impaired airway (Figs. 2 and 3). Plastic surgical correction requires the use of a thick-split skin-graft.

The converse situation, that of nares which are too

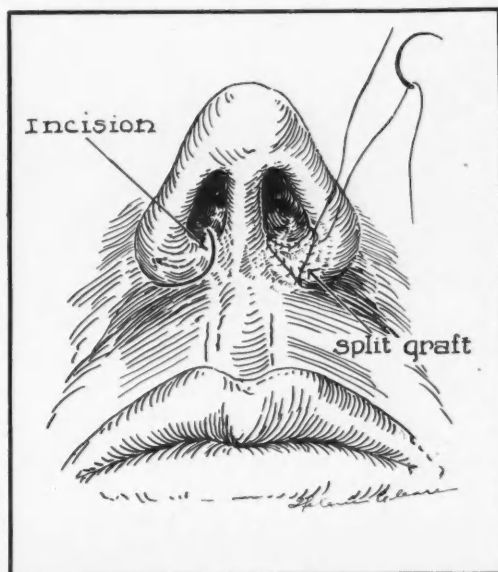


Figure 3.—Diagram showing technique for enlargement of nares.



Figure 4.—(a) Macronares. (b) Normal appearance following plastic repair.

large, is usually due to two factors. First, there may be flaring of the base of the alae. This is corrected by excision of a wedge-shaped segment (Figs. 4 and 5). Secondly, there may be resiliency of the alar cartilage which acts as a spring, constantly dilating the nostril. Resection of a segment of the alar cartilage corrects this part of the deformity. One should cut almost completely through the cartilage in an antero-

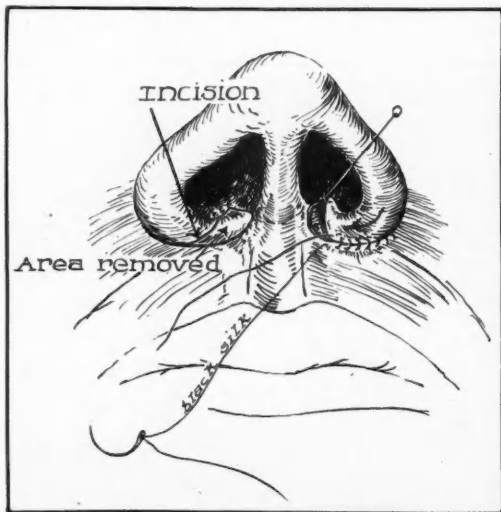


Figure 5.—Technique of reduction in size of nares.

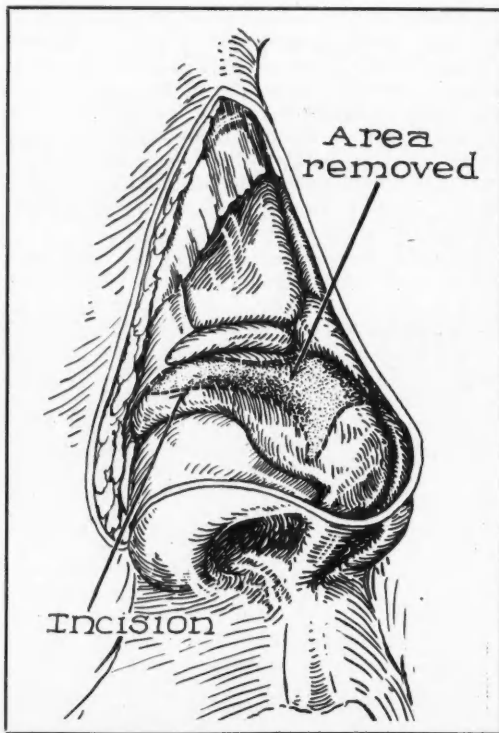
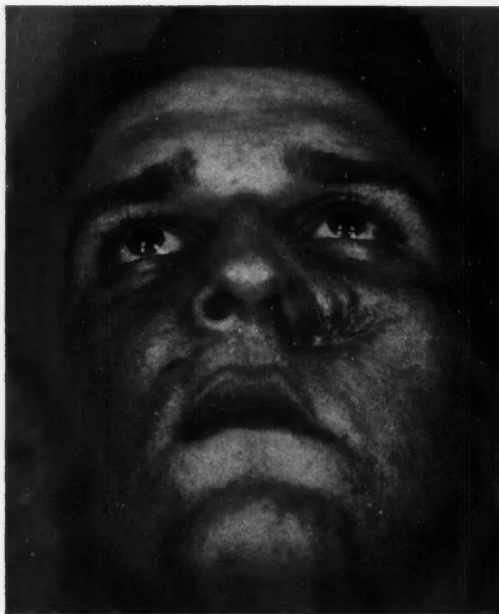
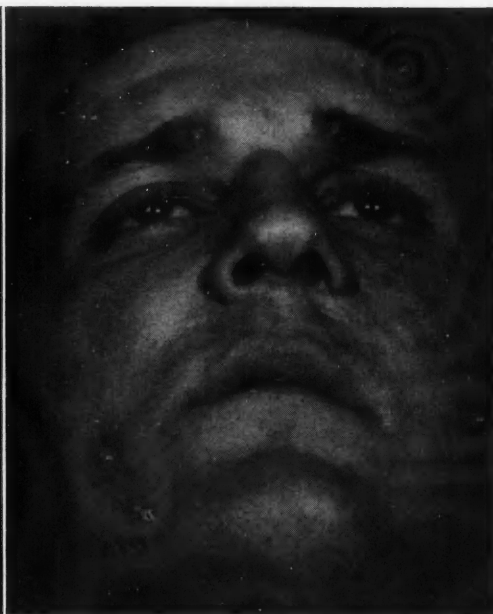


Figure 6.—Diagram of sector of alar cartilage which must be removed to give normal modeling to the nares.



a



b

Figure 7.—(a) Stricture of left naris following wound near the left naso-labial angle. (b) Appearance following plastic repair using the "sickle-flap" technique of New.

posterior direction, but not completely, as a collapsing ala may result (Fig. 6).

Congenital collapsing alae are sometimes seen and are corrected by grafting elastic cartilage from the opposite ala or from the concha of the ear, obtaining and placing the graft so that the inherent curvature of the donor site is employed to maintain an open ala in the transplanted position. Atresia of the nares may accompany congenital syphilis or occur spontaneously. Plastic repair involves the use of thick-split skin-grafts, as in traumatic stricture of the nares.

One cause of difficulty in certain patients arises from the fact that the nares on one side may be reduced in size by lateral displacement of the tip of the cartilaginous septum. This is not only unsightly, but

may impair breathing on the affected side. Plastic repair involves shortening the septum and moving it into place behind the columella by freeing it from its attachment to the vomer.

Negroid flaring of the nostrils in persons of Caucasian heritage is often due to thickening which occurs following repeated trauma. This is especially true when accompanied by a crushed nasal bridge. The tip is depressed and the alae are widened, forming alae closely resembling those of the normal Negro. Surgical correction of the alae should accompany plastic repair of the nasal bridge. The nares are narrowed by wedge resection of the alar floor, as in the case of nostrils which are too large. When an excessively prominent tip is being reduced in height

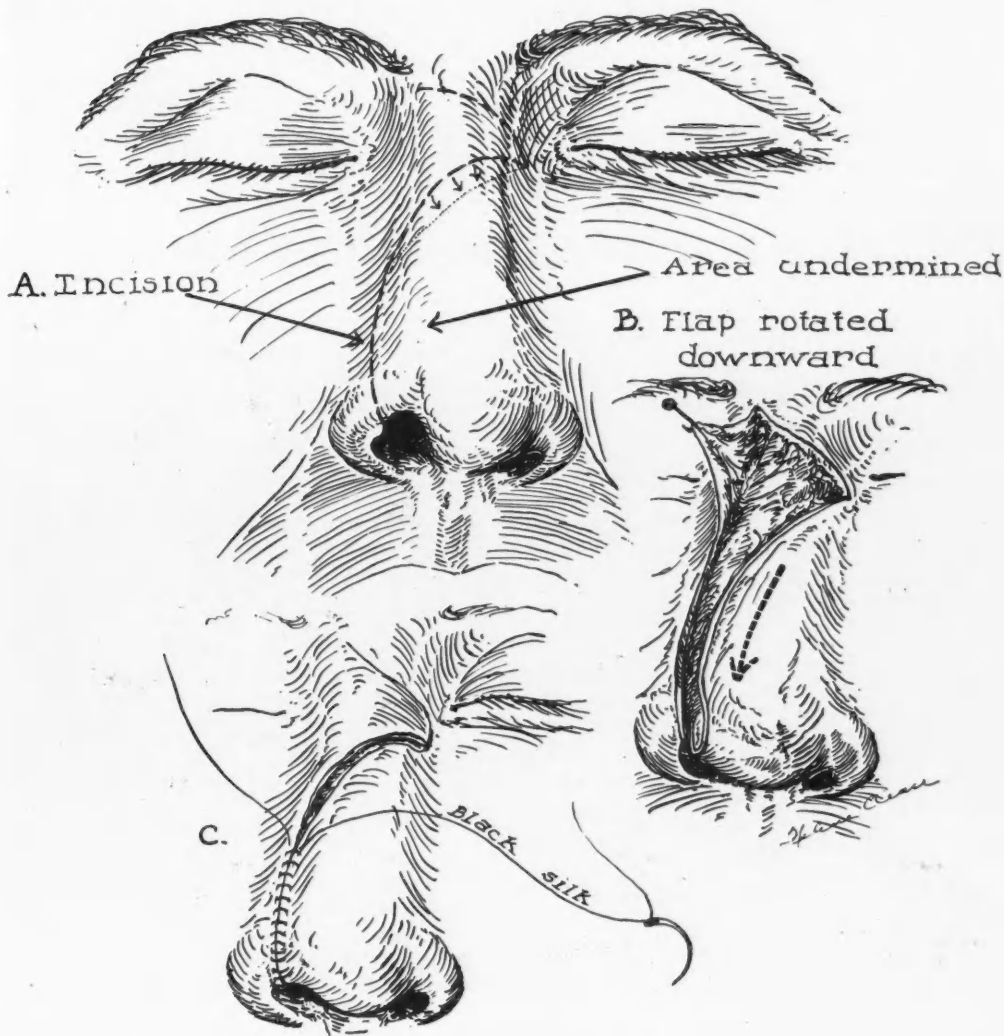
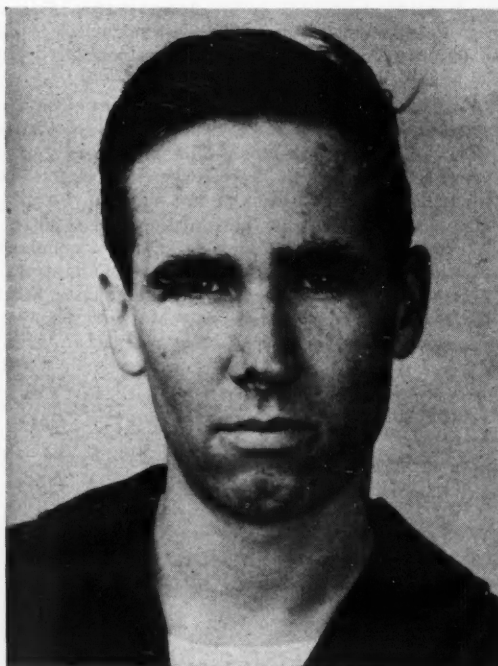


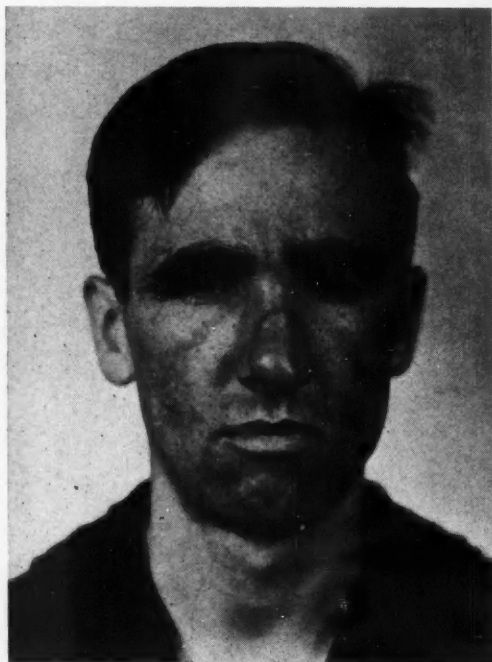
Figure 8.—Diagram showing technique for repair of small loss of ala by advancing local tissue.



a



b



c



d

Figure 9.—(a and b) Preoperative appearance following loss of portion of alar tip on the right. (c and d) Post-operative appearance following plastic repair by advancing local tissue. (Photographs were taken immediately following suture removal to illustrate reddened lines of incision.)

during a nasal plastic operation it is often noted that a Negroid flare is produced as the tip is lowered. The alae should be reduced at the same time by the method described above.

The alae and the bulbous tip of an ugly nose can

be effectively reshaped in conjunction with the removal of a nasal hump, narrowing of the bridge, or other cosmetic procedures. All too often, corrective procedures are carried out for the bridge and tip of the nose without due consideration for plastic repair

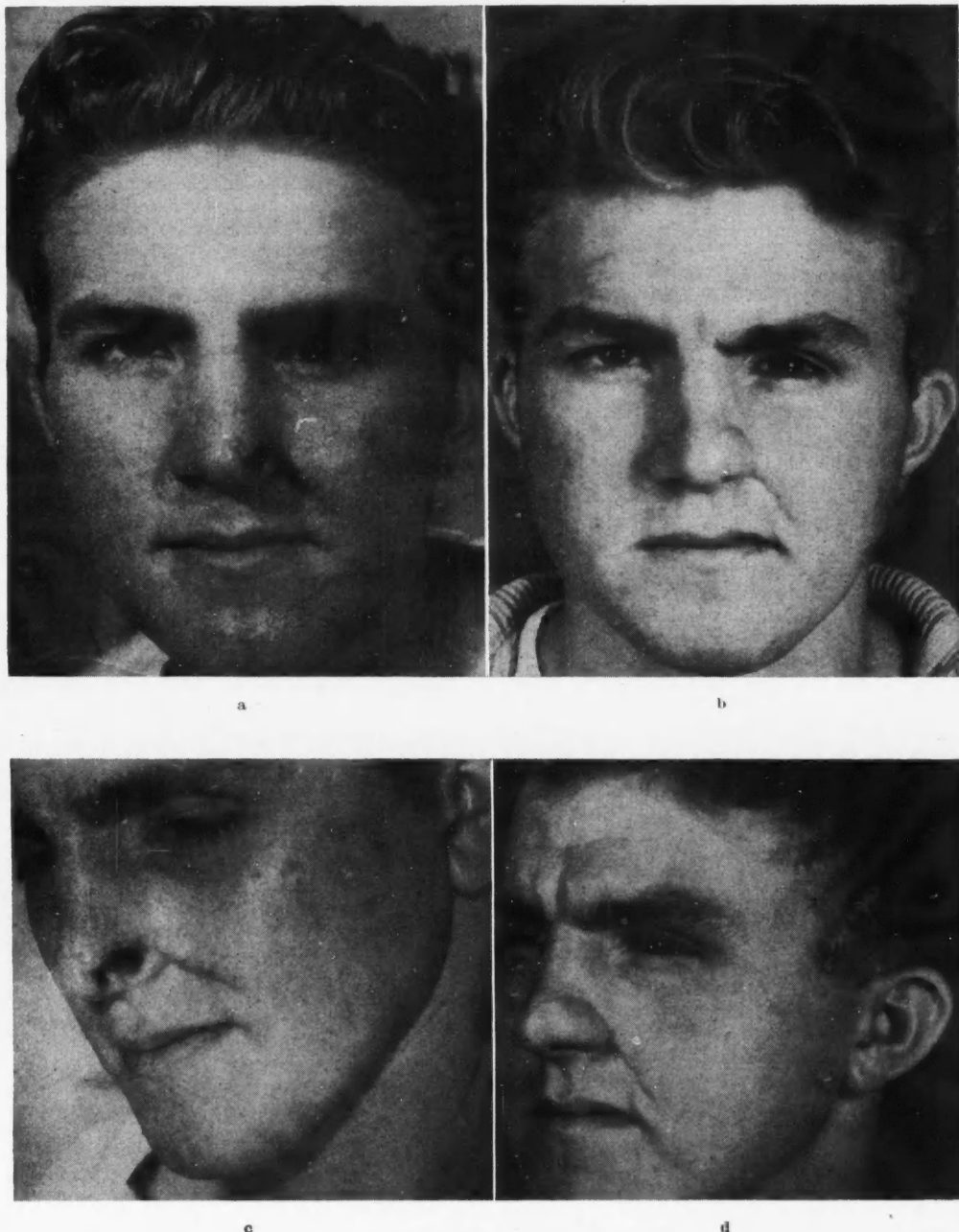


Figure 10.—(a and c) Traumatic loss of left ala with resulting deformity of naris. (b and d) Appearance following plastic surgical correction by the "sickle-flap" technique of New.

of the alae. If attention is given to this necessary detail, a pleasing cosmetic appearance of the nares can be obtained.

ACQUIRED DEFORMITIES OF THE NARES

Damage to the nares can occur as a result of infection, benign or malignant tumors, burns, blows, cuts, bites, and tearing injuries. There may be simple lacerations or complete avulsion. Loss of substance may greatly disfigure the nares or binding cicatrix may completely stenose the openings. Injuries to adjacent structures may also cause distortion of the nares due to late cicatricial contracture (Fig. 7).

Any laceration of the naris which cuts completely across its circumference will result in cicatricial stenosis of the naris. This is due to the fact that all scars contract along their long axis and, since the scar in such a laceration forms a ring, it can only contract by decreasing the diameter of the ring, producing stenosis. If the contracting ring is near the external opening of the naris, correction may be effected by the use of a "Z-plastic" operation. If the scarred ring is internal to the accessible area of the vestibule, a "Z-plastic" is impractical and a buried thick-split skin-graft is used to relieve the stricture.

Airway through the nares can also be obstructed by collapse of the columellar support. This may result from injury or infection or occasionally following a submucous resection of septal cartilage, which has been too extensive. The tip tends to fall downward and inward against the upper lip and the cross-sectional diameter of the naris is thus decreased. Plastic surgical correction involves the use of a cartilage graft to restore support to the tip.

The diameter and configuration of the nares can be changed by loss of substance of the alae or columella. Correction is directed toward the replacement of the tissue which has been destroyed. If only skin has been lost, a full-thickness skin replacement is indicated. If full thickness of the ala or columella has been destroyed a free graft of ear substance (containing all layers) or a pedicle-graft must be used for restoration. The use of free grafts of "skin-

cartilage-skin" from the tip of the ear, or "skin-fat-skin" from the lobe, as free grafts has been recently popularized by Brown, Cannon and Dupertuis. Results, as illustrated in their cases, have been quite successful. An additional method of shifting local tissue which has been found to be useful is illustrated (Figs. 8 and 9).

Major losses of substance of an ala seriously disfigure the nares. Correction requires replacement of the missing tissue by similar tissue from a distance. Such tissue should most nearly match the color and texture of the missing part. Such flaps can be derived from the forehead, cheek, or neck. Excellent methods of replacement have been described by New (Figs. 7 and 10) and by Kazanjian. The use of a neck tube is more involved, matches the surrounding nasal tissue less well, and has a tendency for persistent redness for many months, creating a conspicuous repair of the nasal ala. In some instances, however, this method of repair is the method of choice, particularly when there are other facial defects to be corrected at the same time. The use of a cheek flap from the naso-labial fold is of value in older patients whose tissues are loose and stretch easily.

SUMMARY

The nares are important in the cosmetic appearance and function of the nose. Abnormalities of congenital or acquired types are fairly common and are correctible by plastic surgical methods.

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Periarteritis Nodosa (Panarteritis Nodosa) with Report of Four Proven Cases

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JONES,⁵ and Baker,¹ in 1942, well reviewed and summarized the literature dealing with periarteritis nodosa and provided such splendid bibliographies that elaborate repetition now seems superfluous and extravagant if not presumptuous. Accordingly, it is intended to attempt to limit this presentation to bare essentials, and to submit a few additional references and a few ideas for consideration.

Periarteritis is, as the name implies, an inflammatory condition of the smaller arteries and arterioles in any part or parts of the human and some several animals. Whether it is entitled to the distinction of being a disease entity in itself is under dispute and study. Many believe that the disorder is a form or phase of a condition embracing a group of disorders featured by peculiar lesions of the smaller arteries and arterioles. Some of the group are: scleroderma, dermatomyositis, disseminated lupus erythematosus, Libman-Sacks "disease," and the syndromes described by Friedberg and Gross; rheumatic fever and rheumatoid arthritis have been introduced as relatives; Thompson¹⁶ suggests that possibly Löffler's syndrome should be included in the clan.

Periarteritis nodosa was first described by Von Rokitsansky,¹⁷ and Kussmaul and Maier.⁷ Seventy-one years later, Ophuls,¹¹ in 1923, reviewed the literature and found but 70 references to the disease. Rothstein and Welt,¹⁴ in 1933, found 195 reported cases; Motley,¹⁰ in 1936, found 215; Boyd,² in December 1938, found 395; and Wilson and Alexander¹⁹ found about 200 authenticated cases described from early 1940 through 1943.

The tremendous increase in the number of cases of periarteritis nodosa being reported is very stimulating and somewhat disquieting, the latter not because this highly fatal disease has already become commonly recognized, but because there is accumulating evidence indicating that the disorder may be induced by the administration of various agents, some of which are in common use in all specialties and subspecialties of medico-surgical practice. The various agents which might induce a state of hypersensitiveness, and through this periarteritis nodosa, include serums, vaccines, sulfonamides, histamine, tissue extracts, and so forth. Possibly thiouracil, gold salts and other substances should be included.

It is highly probable that some part of the increase in the number of cases of periarteritis nodosa being reported is due to: (1) increased alertness of the medical profession toward the diagnosis of the condition; (2) the expanded use of old and the adoption of new diagnostic procedures; (3) the increasing percentage of autopsies without which many of the

cases would be disposed of with an incorrect diagnosis; and (4) an increased interest in reporting the proven cases.

The cause or causes of periarteritis nodosa are not yet determined. Those favoring an infectious etiology have accused the spirochete of syphilis, other spirochetes, viruses, streptococci, staphylococci, and bacilli. Reimann, Price, and Herbut,¹² in 1934, reported two cases of combined trichinosis and periarteritis nodosa and suggested the possibility that the latter might have been secondary to the former. Gruber,⁴ in 1925, first reported the possibility or probability of periarteritis nodosa being a hypersensitivity reaction. Rich and Gregory¹³ have produced rather convincing evidence to substantiate Gruber's contention. Wilson and Alexander,¹⁹ in 1945, offered further evidence and with their article supplied an extensive bibliography listing many articles dealing with the relationship of hypersensitiveness and periarteritis nodosa. Webb,¹⁸ in 1944, reported a case of periarteritis in a woman with toxemia of pregnancy and puerperal sepsis. It is quite probable that more than one of these schools of thought will eventually be able to prove their contention.

The inflammatory reaction in the arteries and arterioles leads to the production of miliary aneurysms and to the extreme reduction or occlusion of the lumen, with resultant changes in the tissues thus denied their blood supply. These tissue responses, single or combined, consist in part of inflammation, edema, hemorrhage, ischemia, infarction, necrosis, ulceration, perforation, and fibrosis. Inflammatory granulomatous changes have been described by Lindsay, Aggeler and Lucia⁸ and others.

Middleton and McCarter,⁹ in 1935, published an article dealing with the diagnosis of periarteritis nodosa. While the disease spares no sex or age, it does seem somewhat more common in the male and in the fourth and fifth decades. About 10-15 per cent of the cases reported have been in children. The disease may be fulminating, particularly in children, or insidious, progressive or intermittent. The usual course in the fatal cases (about 95 per cent), runs a matter of four to eight months, the longest published case running 12 years.

Since the arterial involvement may be mild or severe, localized, scattered, or generalized, fulminating or chronic, the symptoms, findings, and course will, of consequence, be most protean. No tissue and so no system is immune to the ravages of the disorder. The tendency for the condition to become generalized is so prominent that multiple, if not all, systems of the body usually become involved. Its extremely protean nature in itself may be one of the most revealing features in disclosing the identity

As a colonel, M.C., A.U.S., the author was assigned to Medical Service, Letterman General Hospital, San Francisco, during the time the reported cases were observed.

of the disease. Quite uniformly the patients have lassitude, malaise, chronic fatigue, easy fatigability, fever and a leukocytosis. Beyond this the symptoms and findings depend on the distribution and magnitude of the vascular involvement. Though none of the following are essential to the diagnosis of the condition, the rather sudden and otherwise unexplained development of them, especially if in combination, should make one very suspicious of periarteritis nodosa or one of the related disorders: (1) Asthma, especially in an older person and with an eosinophilia of 15 per cent or more; (2) evidence of renal disease; (3) arterial hypertension; (4) diabetes mellitus; (5) peripheral neuritis; (6) evidence of peripheral vascular disease; (7) cardiac disorder.

Some special studies, none of which are uniformly helpful, to consider in the approach to the problem are:

1. Biopsies. (The gastrocnemius usually is a fruitful source.)

2. Repeated differential leukocyte counts.

Wilson and Alexander¹⁹ identified asthma in 18 per cent of 300 consecutive cases of periarteritis nodosa. Of the asthmatic cases, 95 per cent showed hyper eosinophilia ranging from 11 to 84 per cent. Only six per cent of the non-asthmatic cases showed hyper eosinophilia.

3. Urinary sediments.

Krupp⁶ has reported finding in 14 of 21 cases of periarteritis and related disorders single urine specimens presenting red blood cells, red cell casts, oval fat bodies, fatty and waxy casts and, frequently, broad casts. Here, under one coverslip, are seen the elements characteristic of all three stages of glomerular nephritis, which are usually separated by years or decades. (It was Krupp, then assigned to the laboratory service, who, on examining the urine of Case 1, first considered the case to be one of periarteritis nodosa or one of the related disorders.)

4. Sigmoidoscopy.

Felsen³ reported finding characteristic changes in the distal gut.

This article has been prepared with the view of reporting four hitherto unreported proven cases of periarteritis nodosa, three of which were diagnosed antemortem; with the desire to remind all branches of the medical profession of the possibility that part of the somewhat alarming, rapidly progressing increase in the number of cases of periarteritis nodosa being reported may be cases induced by the administration of serums, sulfonamides, tissue extracts, or any other substance to which the body may develop a state of hypersensitivity;^{4, 13, 19} and to introduce for consideration the possibility that the yellow fever vaccine, some of which became contaminated with an icterogenic virus, may have been directly or indirectly responsible for the development of periarteritis nodosa in the four cases being reported.

The patients in all four of the cases herein reported were vaccinated against yellow fever about February or March 1942. The patient in the first case became ill about May 10, 1942. In this case one cannot prove the existence of hepatitis prior to the onset of

symptoms considered to represent the onset of his periarteritis nodosa. Mild hepatitis has not been uncommon, however, and furthermore its coexistence might be masked by or blended with the periarteritis nodosa. In the second case, hepatitis with cholemia developed in mid-May, 1942, and the symptoms of his periarteritis about June 20, 1942. In the third case, hepatitis with cholemia developed in June, 1942. The patient never became asymptomatic therefrom so that it is difficult to localize temporally the onset of the manifestations of his periarteritis nodosa. However, a persisting unfavorable change in his condition developed in November, 1942. In the fourth case hepatitis with cholemia developed following yellow fever vaccination. This fourth case was not diagnosed antemortem, and as a consequence the date of the hepatitis was not obtained for the clinical record. While some of the periarteritis nodosa lesions in this fourth case were young, some were old enough to date back to at least the summer of 1942.

All four of the cases were Army officer patients admitted to Letterman General Hospital, an Army installation. Therefore, it might justifiably be contended that these officers, to develop periarteritis nodosa at all at the time they did, would have to develop it after having been vaccinated against yellow fever, for nearly everyone in the military service in that area had been so vaccinated early in 1942. It is highly probable that all these officers had received other vaccines about the same time, such as tetanus, triple typhoid, typhus, and less likely cholera and plague. These vaccines should be kept in mind as possible occasional offenders. The fact that all four were commissioned personnel may be partly explained by the tendency of the relative youthfulness of the enlisted personnel to make them less vulnerable.

In any event, this shower of four deaths from periarteritis nodosa in a single medical installation over a period of 26 months is no less than remarkable if not significant. The registrar of this installation, which has been in constant operation since about the turn of the century, informs me that as of January 15, 1946, these four cases are all they have ever had. There were 194 autopsies at this installation in this interval of 26 months. Periarteritis nodosa was the cause of death in four (2 per cent) of these cases. Webb¹⁸ reported periarteritis nodosa as having been found in two of 1,510 consecutive autopsies at Freedmen's Hospital, Washington, D. C., from 1930 to 1944. Jones⁵ reported 14 cases being admitted to the University Hospital of the University of Michigan between October 9, 1930, and November 4, 1940. This is a concentrated group, but the report does not include figures permitting one to calculate what per cent of total admissions or autopsies were cases of periarteritis nodosa. It may confidently be assumed that the 14 cases reported from the University of Michigan Hospital had not been vaccinated against yellow fever, but it may not be assumed they did not receive serum, sulfonamides, or other agents capable of sensitizing individuals. It is agreed that

the proposition that the yellow fever vaccine may have played a role in the induction of the disorder in these four cases is open to argument as well as consideration. An analysis of the natural deaths in the military services since early 1942 as compared to one for the three preceding years might be illuminating. For various obvious reasons, medical statistics from military installations cannot be effectively compared to those from civilian institutions.

Symptomatic and supportive treatment and the appropriate treatment of the extremely protean consequences of the vascular lesions seem about all that can yet be defended with much evidence.

CASE REPORTS

CASE NUMBER 1: A 44 year old white, male Army officer was hospitalized May 31, 1942, because of unexplained and progressive headaches, feverishness, fatigue, lassitude, general malaise and a sense of heaviness and soreness all over, but especially in his four extremities at and between his joints. In addition, he complained of anorexia, loss of interest in his hitherto relished tobacco, dark urine, ankle edema, tenderness in his calves, and pain in the calves aggravated by walking.

Prior to this illness the officer enjoyed an essentially unblemished health record. He had been vaccinated against yellow fever about February or March, 1942, but reported no unusual reaction therefrom.

The physical examination on hospitalization revealed moderate fever, tachycardia of 120 per minute, a slate colored skin, slight tenderness of the muscles of the thighs, moderate to marked tenderness of the muscles of the legs, and moderate pitting ankle edema.

Laboratory Findings: Urinalyses on admission revealed only mild proteinuria and 15 to 20 hyaline casts per H.P.F. Soon thereafter, red blood corpuscles appeared in abnormal numbers. Somewhat later, but before June 15, 1942, the urine sediments carried abnormal numbers of R.B.C. and W.B.C., fine hyaline, granular, cellular and R.B.C. casts, many R.B.C. and W.B.C. tubular casts and a few broad casts.

The blood Kahn was normal and the blood sedimentation rate on admission was normal; it was not repeated. The blood urea nitrogen gradually rose from an admission level of 10 mgm. per cent to 27 mgm. per cent by June 26; it had returned to about 15 mgm. per cent by July 31. Plasma proteins on two occasions in June were about 4.5 grams per 100 cc.; the A:G ratio was on each occasion 0.56. Intravenous phenolsulfonthalein, June 6, yielded 45 per cent in one hour and 60 per cent in two hours.

Thick smears of blood for malaria were normal and prostatic smears yielded only many gram positive cocci, while agglutinations for typhoid, paratyphoid A and B, undulant fever, and *Proteus* X-19 were normal. Blood cultures were sterile. The prothrombin time on June 27 was 25 seconds.

The E.C.G. on June 1 revealed only sinus tachycardia of 106, and x-ray films of bones, joints, lungs, heart and abdomen revealed no disease. The R.B.C. ranged between 3.3 and 4.4 million; the hemoglobin between 70 and 90 per cent; the W.B.C. 10 to 23 thousand and the eosinophils between 1 and 9 per cent.

Biopsy of a section of gastrocnemius muscle, right median belly, taken two weeks after the patient was hospitalized, revealed microscopically typical pathology of periarteritis nodosa.

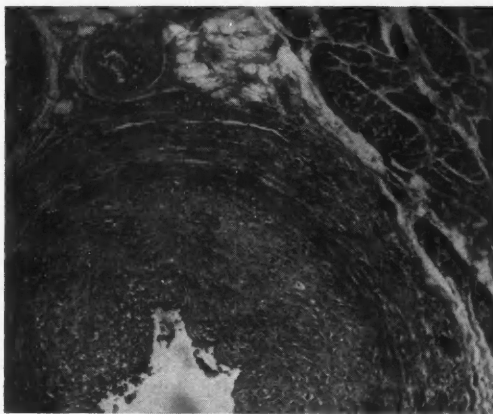
During the first week of hospitalization, the patient had a normal morning but high afternoon temperature, developed chills, episodes of profuse diaphoresis, and severe pains in

both legs. These, with the admission symptoms, persisted until about mid-June, by which time he had developed, in addition, a paralysis of the dorsiflexors of both feet, and a constant fever. Characteristic urinary sediments were identified and reported by Krupp,⁹ then assigned to the Laboratory Service, prior to the confirming biopsy from the gastrocnemius muscle June 15, 1942.

During the last two weeks of June, the patient was much relieved of all symptoms except the paralysis of the dorsiflexors of both feet. Thereafter, his course was a series of relapses and remissions of all symptoms except the paralysis, which was permanent. Early in July, atrophy, which proved to be progressive and became extreme, was noted in the musculature of all four extremities. About July 20, severe pains developed in both forearms. On August 15, he was delirious and combative. Such episodes became progressively more frequent and severe until his demise September 11, 1942. Treatment in this and the three cases to follow was symptomatic and supportive: low residue diet, anodynes, sedatives, transfusions, and so forth.

Clinical Diagnosis: Periarteritis Nodosa.

Anatomic Diagnoses: 1. Periarteritis Nodosa, generalized, severe; 2. Infarction, small intestine, multiple, severe, secondary to "1"; 3. Perforation, small intestine, complete, secondary to "1" and "2"; 4. Peritonitis, adhesive, chronic, extensive, severe, secondary to "1", "2" and "3".



CASE No. 1.—Coronary arteries showing degenerative changes of media, marked intimal thickening and proliferation, and infiltration of polymorphonuclears, lymphocytes, and occasional eosinophils throughout all layers.

CASE NUMBER 2: A 54 year old white, male Army officer was hospitalized July 1, 1942, because of fever, anorexia, malaise, episodes of profuse diaphoresis, polyuria, dark urine, grayish stools, aching pains in both legs aggravated by walking or prolonged standing, and a small blotchy erythematous rash which started on his legs and gradually spread to his arms and back.

Except for arterial hypertension of some 15 years' standing and "swollen ankles" toward evening for an indefinite but extended period ending some several weeks before his current illness, and a period of anorexia, nausea, heaviness in the region of the liver, and jaundice in May, 1942, the patient had enjoyed good health. With the exception of the jaundice, the symptoms which developed in May, 1942, persisted to or fused with the present illness. He had been vaccinated against yellow fever in February, 1942.

The admission physical examination revealed: A Raynaud-like syndrome in all manual digits, prominent mottling of

the skin of both legs, a mild tachycardia, fever of 100° F., blood pressure of 175/95, the left lobe of the prostate to be slightly enlarged, mild bilateral deafness, an arcus senilis, bilateral mild pitting edema of the ankles, and bilateral moderate tenderness of the calves.

As Case No. 1 with a very similar story and picture had been admitted to the same ward only a month earlier, it was very natural that periarteritis nodosa immediately was seriously considered and prominently listed in the working diagnosis.

Multiple urine studies revealed little or no protein; and inconstantly a few small R.B.C., hyaline, cellular, granular and waxy casts, but no broad casts. Blood Kahn was negative. The blood urea nitrogen values were within normal limits, while the serum proteins measured 5.2 grams for each 100 cc. (Albumin/globulin ratio 1:1.) A prostatic smear contained pus cells but no bacteria. Serum agglutinated *E. typhi* up to 1:1280 on July 4, 1942, and again on July 6, 1942. Blood and urine cultures were negative for all growths, and feces cultures were negative for typhoid group and no parasites or ova were found.

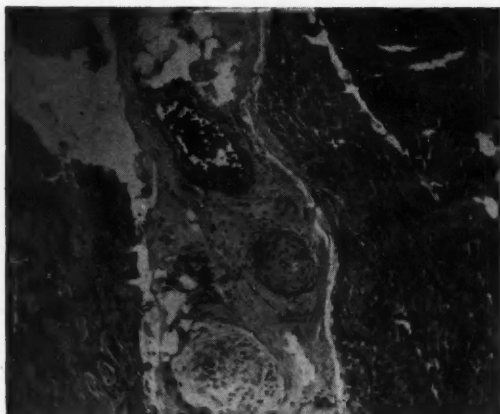
The icterus index varied from 11 to 34 units.

An electrocardiogram revealed sinus tachycardia and left axis deviation.

Biopsy of the right gastrocnemius muscle revealed diagnosis compatible with periarteritis nodosa.

Blood:	R.B.C.	W.B.C.	Hb.	Eosinophiles
7-2-42	4.25	10400	90	Ranged from 1 to 4%
7-14-42	4.15	32000	90	
8-1-42	3.67	21600	75	

During the first two weeks of hospitalization, the patient's condition was unchanged. Then the fingertips changed color from pallor to cyanosis, the right foot became anesthetic, paresis of the dorsiflexors of the left hand and wrist developed, and the urine sediments began to resemble those so suggestive of periarteritis nodosa. On July 19 the patient awakened with a total paralysis of the extensors of the right wrist; on July 31 the paresis of the left wrist became a paralysis. On August 4 a biopsy from the gastrocnemius muscle confirmed the diagnosis. During August dry gangrene of the second left toe, both thumbs, and right middle finger developed, and there was extreme muscular atrophy of all four extremities. The patient rapidly failed and expired September 16, 1942.



CASE No. 2.—Muscle biopsy showing fibrosis of arterial wall with almost complete occlusion, and residual perivascular infiltrate of lymphocytes, polymorphonuclears, and occasional eosinophils. Note degenerative changes in skeletal muscle with altered staining reaction and marked sarcolemmal proliferation.

Clinical Diagnosis: 1. Periarteritis Nodosa.

Anatomic Diagnoses: 1. Periarteritis Nodosa, generalized, severe; 2. Infarction, myocardial, multiple, extensive, recent and old, secondary to "1"; 3. Perforation, small bowel and gall bladder, secondary to "1"; 4. Peritonitis, suppurative, acute, severe, secondary to "1" and "3"; 5. Infarction, with necrosis, pancreas, severe, secondary to "1".

CASE NUMBER 3: A 53 year old white, male medical officer was hospitalized March 2, 1943. The history of previous illnesses was noncontributory. In March, 1942, the patient was vaccinated against yellow fever. In June, 1942, at approximately the same time that others vaccinated with him developed hepatitis with cholemia, he developed anorexia, nausea, belching, gaseous abdominal distention, but, he thought, no jaundice. He was very tired. While indigestion disappeared after several weeks, the chronic fatigue and easy fatigability seemed progressive. About late November, 1942, pain in the calves developed, and this was aggravated by walking or prolonged standing. Through the course of the next three months these pains became more severe and gradually were accompanied by the same symptom in the thighs, back, shoulders, neck and arms. These pains seemed worse in the afternoon and evening. During the same three months prior to admission, chilly sensations and profuse night sweats gradually developed. In spite of all these symptoms, the patient had remained on duty until two weeks prior to admission, when he accepted sick-in-quarters status.

Physical examination upon admission revealed blood pressure of 115/75, a pulse rate of 88, a slight fever, slight tenderness at the left costovertebral angle and tenderness of both calves. A series of blood studies (R.B.C., W.B.C., Hb., and differential) showed normalcy except for a leukocytosis ranging between 10,000 and 20,000. Cultures of urine, blood and stools were normal, as were agglutinations for all the usual disease considered in chronic febrile disorders (except for typhoid and paratyphoid, in which cases the result was that to be expected in vaccinated military personnel). An electrocardiogram also was normal.

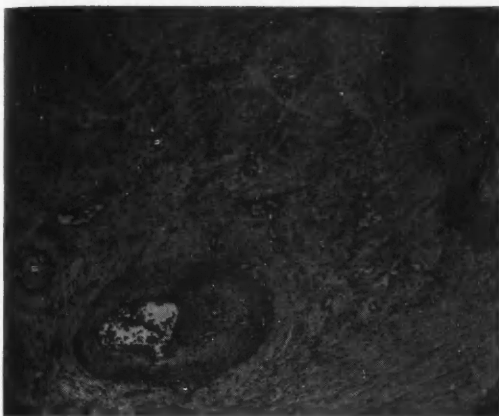
A series of urinalyses showed inconstant proteinuria without a significant number of R.B.C., W.B.C., or casts. Erythrocyte sedimentation rate was constantly rapid. X-ray films of the chest and heart, gastrointestinal tract, gall bladder and soft tissue of the legs all were normal, as were the pyelogram and a barium enema study. The blood Kahn also was normal. A biopsy specimen from the gastrocnemius showed periarteritis nodosa.

At about the time of hospitalization, the patient developed gaseous abdominal distention which thereafter was only partially relieved by enemas and prostigmine. All other symptoms became progressively worse until he died. Late in March he developed neuritic pains in all four extremities. Had the ward officer had the advantage of having seen Cases 1 and 2, he ought by then have grown very suspicious that he was dealing with another case of periarteritis nodosa. When the neuritic pains developed, Clarence Godard, Lt. Col., M. C., A. U. S., Chief of the Neuropsychiatric Service, was called in consultation. It was his opinion April 4, confirmed by biopsy the following day, that the patient had severe, multiple peripheral neuritis, probably secondary to periarteritis nodosa. About April 17 both feet became paralyzed and the right hand and wrist paretic.

At his own request and that of a physician friend, the patient received two courses of sulfadiazine, neither of which seemed to have favorable or unfavorable influence.

He progressively failed and on June 9 was unconscious, incontinent, pallid, and diaphoretic with shallow, slow, stertorous respiration, a weak, thready pulse, and a blood pressure of 60/40. He died that day.

Clinical Diagnosis: Periarteritis Nodosa.



CASE No. 3.—Testis showing organization and recanalization of thrombus in medium sized artery, with infiltration of all coats by polymorphonuclears, lymphocytes, and occasional eosinophils; the interstitial tissue is scarred and the tubules degenerated. In areas this testis showed acute infarction.

Anatomic Diagnoses: 1. Periarteritis Nodosa, generalized, severe; 2. Hemorrhage, multiple, of brain and pons, secondary to "1"; 3. Infarction, myocardial, acute, secondary to "1".

CASE NUMBER 4: A 64 year old white, male officer was hospitalized October 24, 1944, because of a recurrence or partial persistence of frequency, nocturia, and dysuria dating from about 1930. A transurethral prostatic resection had been done in December, 1943, and this had resulted in comfort which continued until late July, 1944.

About 1940 the patient had noticed an increase in ease of fatigability and mild pain in his left chest unrelated to exertion. An electrocardiogram taken at that time and another in June, 1942, he believed, were reported as being slightly abnormal. In June of 1943 he developed increased fatigability, lassitude, and dyspnea on slight exertion. The exertion also caused a pain in his left chest which sometimes radiated to his left upper arm. This was a sensation of fullness or pressure with an occasional sharp quality. The pains usually lasted from a few seconds to a minute and were relieved by rest. He had been vaccinated against yellow fever in February or March of 1942 and had developed hepatitis with cholemia a matter of two to four months thereafter.

Upon physical examination admission revealed blood pressure of 175/105, bilateral absence of dorsalis pedis pulsation, and uniformly smooth third degree enlargement of the prostate. The author saw this patient in consultation October 31, 1944, and was unable to get a history of any symptoms, except those referable to the urinary tract, prior to December of 1943 when the circulatory symptoms developed. However, an electrocardiogram dated June, 1943, was available, a fact which suggested there might have been symptoms then which had been the reason for taking the electrocardiogram. This record and one taken in December, 1943 revealed changes suggesting coronary insufficiency. The author found nothing additional in the way of physical changes.

Recent, current studies, including an x-ray film of the heart and lungs, routine complete blood count and hemoglobin estimation, complete urinalysis, blood sugar, blood urea nitrogen, blood cholesterol, blood chloride, and electrocardiogram, showed no abnormality. In the light of these findings, the author gave the opinion that, should clotting,

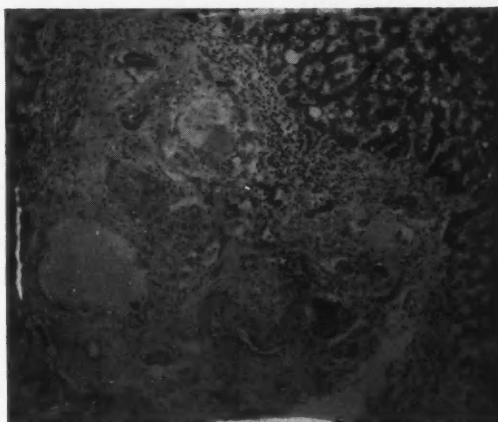
bleeding, and prothrombin times be normal (and they proved to be normal), the patient was a reasonably good surgical risk for a transurethral resection under sacral block anesthesia. In view of his circulatory history and transient electrocardiogram changes, it was recommended preoperative atropin and barbiturates be administered and that a plentiful supply of compatible blood be immediately available.

With these precautions, the transurethral resection was performed November 2, 1944. While it was anticipated that the patient would be in the operating room for an hour or less, severe hemorrhage from the operative site kept him there a matter of four hours. Attempts during that time to control the hemorrhage were of doubtful success. The patient was returned to the ward with a Breeke bag held in place by two pounds of traction, and 1000 cc. of fresh whole blood was transfused almost immediately. At 3 o'clock that afternoon the patient perspired profusely, had tachycardia of 120 per minute, blood pressure of 215/105, and had developed a pulsus alternans. Atropin was continued and papaverine, aminophylline, and oxygen therapy were initiated. At 11:30 that night the pulsus alternans had disappeared but frequent premature ventricular systoles had developed. Through the following two days, November 3 and 4, the general condition seemed much improved and the blood pressure and pulse had returned to the patient's usual. At 6 a.m., November 5, he suddenly lost consciousness and became apneic and cyanotic. Caffeine and artificial respiration were administered. Upon recovering consciousness, the patient insisted no pain had preceded the episode. Another such episode developed at 5 p.m. the same day, again with prompt recovery. The blood pressure at the time was 150/90. Half an hour later, death came in such an episode.

An electrocardiogram taken immediately after the 6 a.m. episode revealed frequent runs of ventricular tachycardia, frequent premature ventricular systoles, a flat T-1, low T-2, and deeply inverted T-4. Myocardial infarction and pulmonary embolus were considered complicating possibilities.

Clinical Diagnoses: 1. Prostate, hypertrophy of, benign, chronic, severe, cause undetermined; 2. Arteriosclerosis, generalized, severe; 3. Infarction, myocardial, acute, secondary to postoperative hemorrhage and "2".

Anatomic Diagnoses: 1. Periarteritis Nodosa, generalized, severe. (Lesions of all stages or ages present); 2. Hemorrhage, postoperative, severe, secondary to "1"; 3. Cardiac arrhythmias, various, and probably terminal ventricular fibrillation; 4. Arteriosclerosis, generalized, mild.



CASE No. 4.—Liver. Fibrotic portal area showing small hepatic artery with eosinophilic degeneration of wall, and almost complete fibrotic obliteration of lumen of two other arteries.

COMMENT

Complete gross and microscopic autopsies were performed on all four cases. To list all the anatomic changes would serve too little purpose to justify the consumption of the space required. Some of the laboratory reports are omitted as well and for the same reason.

The patients in all four of these cases had been vaccinated against yellow fever in February or March, 1942; three of them definitely, and the fourth probably, developed hepatitis about two to four months thereafter.

The patient in Case Number 4 is known to have received sulfathiazole as a urinary antiseptic about December, 1943, and in view of his longstanding urinary tract problem and the fact he was a physician, it is rather probable that he received sulfonamides at other times. In Case Number 3 the patient received sulfadiazine, not before, but during his terminal illness, under circumstances explained in the case report.

It is of interest that Krupp⁶ was the first to suspect periarteritis nodosa in Case Number 1, as a result of the study of urinary sediments. During the course of hospitalization, but after the diagnosis had been made, the patient in Case Number 2 likewise produced characteristic urinary sediments.

Case Number 4, the only one in which the patient's disease was undiagnosed antemortem, presents features worth comment:

1. Surgeons unfortunate enough to enter a case of periarteritis nodosa face the prospect of dealing with intractable hemorrhage and operative wounds very resistant to healing. The protean manifestations of this disorder paint many pictures very alluring to surgical intervention.

2. If this case is not an example of it, it at least should remind physicians and surgeons of the undependability of blood pressure and pulse readings as indications of the presence or degree of hemorrhage. These may change only when shock is advanced, if not irreversible.

3. In view of the history, the various postoperative cardiac arrhythmias and electrocardiogram changes, careful postmortem search was made for coronary disease and myocardial infarction. Only focal, chronic, interstitial, and perivascular myocardial fibrosis was found. Scherf and Klotz,¹⁵ in 1944, reported QRS, ST, or T changes in electrocardiograms of 14 of 15 cases of gastric hemorrhage. The changes seemed, in most cases, unaccompanied by evidence of shock or severe anemia. The electrocardiogram changes returned to normal in two to ten days.

SUMMARY

1. Four hitherto unreported, fatal proven cases of periarteritis are reported.

2. The patients in all four cases were Army officers who had been vaccinated against yellow fever in February or March, 1942. Three of these officers are known to have developed postvaccinal hepatitis; the fourth is believed to have developed it.

3. All four patients died at a single medical installation over a period of 26 months between September, 1942, and November, 1944, their deaths composing two per cent of the total deaths for that period.

4. The medico-surgical profession is reminded that the rapid acceleration of the rate and number of cases of periarteritis nodosa reported may be due, in part, to the induction of cases by the administration of various substances including sulfonamides, serums, tissue extracts and vaccines including yellow fever vaccine.

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MEDICAL PROGRESS:**Rheumatoid Arthritis: A Review of Recent Literature**EDWARD W. BOLAND, M.D., *Los Angeles*

MUCH clinical and laboratory investigation continues in an attempt to solve some of the mysteries of rheumatoid arthritis, the great crippler among the rheumatic diseases. So voluminous is the literature of the past few years that only some of the more important contributions can be summarized herein. The subject of rheumatoid spondylitis is not included in the present review as it was discussed in a recent issue of this journal.⁷

RELATIVE INCIDENCE

Cases of rheumatoid arthritis make up approximately one-third of admissions to most large arthritis clinics. At the Mayo Clinic 35 per cent of about 4,500 "rheumatic cases" seen annually have this disease.⁶² The same relative incidence prevailed also at the United States Army's two special centers* for chronic rheumatic diseases.⁵⁹ At an Army General Hospital located on the West Coast, peripheral rheumatoid arthritis constituted 12.4 per cent of 450 consecutive admissions for arthritis and allied conditions (peripheral and spinal types combined constituted approximately 20 per cent.²) The relative incidence in British military hospitals was less; rheumatoid arthritis was diagnosed in only 1.85 per cent of 270 soldiers admitted for rheumatic diseases at one general hospital⁹² (incidence for peripheral and spinal types combined was 7 per cent), and at another it accounted for only 6 per cent of musculoskeletal disabilities.²⁷ The disease was a major cause for evacuation of American soldiers from North Africa; such cases outnumbered rheumatic fever, rheumatic heart disease and pulmonary tuberculosis as nonneuropsychiatric causes, and were exceeded only by cases of asthma, peptic ulcer and nonulcer dyspepsia.⁹⁵

CLINICAL DATA

Initial involvement of finger joints was more common in females (38 per cent) than in males (26 per cent) in a civilian series studied by Sclater.⁹³ Among soldiers, initial involvement occurred in the lower extremity joints in 70 per cent of cases;³ the metatarsophalangeal and interphalangeal joints of the feet were involved in 41 per cent of cases, while corresponding joints of the fingers were affected in only 10 per cent. Such figures suggest that joint trauma plays a role in initial localization.

So-called "atypical" cases of rheumatoid arthritis occur so frequently that it may rightly be questioned whether the clinical pattern of "insidious onset, slow progressive course and asymmetrical joint involvement" should be labeled as usual or typical. Ex-

amples of atypical onsets and atypical early clinical courses, as observed by Ropes and Bauer,⁸⁰ included: (1) asymmetrical involvement, often a monoarthritis, (2) sudden febrile onsets precipitated by acute infection and accompanied by skin rash and migratory joint involvement, (3) bouts of arthritis precipitated by respiratory or other infections and not followed by permanent articular residues, (4) febrile onsets resembling rheumatic fever, (5) transient swellings affecting one joint and then another, resembling the "palindromic syndrome," (6) onsets consisting of recurrent joint and muscle aching and stiffness with qualitative characteristics of so-called "primary fibrositis." Most patients with "chronic synovitis" and "intermittent hydroarthrosis" eventually turn out to have rheumatoid arthritis.⁵⁰

Effect of Hepatitis:

Patients with rheumatoid arthritis who develop hepatitis or biliary obstruction of a degree sufficient to produce icterus usually experience either a partial or complete temporary remission of the disease. Subsidence of objective manifestations as well as subjective symptoms may be striking. Attempts made to imitate this phenomenon experimentally by injecting bile salts and bilirubin intravenously have failed. However, Gardner, Stewart and MacCallum⁴⁸ produced hepatitis experimentally by inoculating patients with icterogenic serum from patients with infective hepatitis and were able to study the phenomenon. Of 312 rheumatoid arthritis patients inoculated 32 developed jaundice. With the appearance of jaundice dramatic improvement was noted in 18 of the 32 patients (complete remission in ten, considerable improvement in eight); disappearance of pain and swelling was quickly followed by increase in range of motion. The production of hepatitis experimentally provides a means of evoking a remission under controlled conditions and an opportunity of analyzing the mechanism by which it is produced. How hepatic damage produces its curious ameliorative effect remains unknown.

Effect of Pregnancy:

Many females with rheumatoid arthritis experience relief during pregnancy; partial or complete remissions may occur, usually beginning at the end of the first trimester and persisting for varying periods after delivery. The mechanism in pregnancy, as in hepatitis, remains a mystery. Elevation of serum lipids, total cholesterol and phospholipids is common to both pregnancy and jaundice, but these fractions are not deficient in rheumatoid arthritis.^{14, 17}

* Army and Navy General Hospital, Hot Springs, Arkansas, and Ashburn General Hospital, McKinney, Texas.

Cardiac Findings:

Rheumatic carditis is a frequent autopsy finding in patients with rheumatoid arthritis but clinical or electrocardiographic evidence of cardiac involvement is not common.⁹¹ This disparity suggested to Hench⁶² that the pathologic lesions may be of such a type and degree as to be subclinical and not detectable before death. The occurrence of cardiac lesions at autopsy typical of rheumatic heart disease and the not infrequently observed clinical transition of apparent rheumatic fever into chronic rheumatoid arthritis have convinced some observers that the two diseases are closely related, if not the same disease with different predominant manifestations. Collins²⁴ suggested that rheumatoid arthritis may be a "lente" form of rheumatic fever, and Young and Schwedel¹¹⁶ believed that there was no fundamental purpose in separating the two diseases. However, Hench⁶² thought that the two diseases must be carefully distinguished and maintained that the finding of rheumatic heart lesions in patients with rheumatoid arthritis probably represented "the presence of two coincidental diseases."

PATHOLOGIC DATA

Rheumatoid arthritis is not solely a disease of the joints but a systemic disease characterized pathologically by widespread changes in various tissues and organs. Recent necropsy and biopsy studies emphasized those changes which occur in the heart, peripheral nerves and skeletal muscles.

Joints:

The pathologic changes were described by Kelikian⁶⁷ as follows: Rheumatoid arthritis is an inflammatory reaction of the comparatively undifferentiated connective tissues. The relative vascularity of the synovial membrane and bone marrow favors the localization of circulating irritants, and in response to the offending agent there ensue hyperemia, edema, cellular infiltration, exudate and tissue proliferation. The synovial membrane becomes soggy, thickens (synovitis); from its loose areolar spaces tissue fluids seep into the joint cavity (hydrarthrosis). Later, finger-like processes of proliferated tissue project into the joint cavity (chronic villous synovitis). Granulations formed in the external layer of the synovial membrane may extend into the surrounding structures and cause them to contract (periartritic adhesions, contractures) or, more commonly, they may break through the barrier of the internal layer of the synovial membrane, creep over the articular cartilage (pannus), erode, and destroy it. Usually proliferative activity is going on in the marrow at the same time and the trabeculae of bone are thinned (atrophy). The cartilage is attacked and when the opposing cartilages are completely eaten away, the granulations contract to form adhesions (fibrous ankylosis); ultimately these connecting strands may ossify (bony ankylosis). Rheumatoid arthritis does not always run through this entire gamut of joint inflammation; it may proceed up to one or another phase and then arrest itself. If a

mechanical incongruity is created (eroded articular surfaces, over-distention, contractures, subluxation) the joint may in time break down architecturally. Joints with extensive synovial membrane and bulbous articular ends which contain a greater amount of marrow tissue are more likely to be affected by rheumatoid arthritis; thus rheumatoid arthritis predilects the knees, the elbows, the metacarpophalangeal and proximal interphalangeal joints.

Peripheral Nerves:

Widespread involvement of the peripheral nervous system in patients with rheumatoid arthritis was described by Freund, Steiner, Leichtenritt and Price.^{43,44} Lesions consisting of perineural nodules (nodular perineuritis) were found irregularly distributed, not only in the nerves of the extremities but also in peripheral nerves without joint distribution. Histologically the nodules consisted of an outer zone of lymphocytes with scattered plasma cells and an inner zone of polyhedral shaped cells having large irregular nuclei. Neuritic pains, paresthesias and trophic changes, common to the disease, might be attributed to such lesions.

Muscles:

Steiner, Freund, Leichtenritt and Price⁴² described also a nodular polymyositis consisting of compact accumulations of lymphocytes, a few plasma cells and occasional epithelioid and eosinophilic cells in specimens from 15 cases of rheumatoid arthritis. The disseminated nodules were found in biopsies taken at random (gastrocnemius, deltoid, pectoral, rectus abdominis, iliopsoas muscles, etc.). They were discovered in every case, and were considered as specific lesions. In 196 control cases no such lesions were found. Such a widespread myositis (together with coexisting nodular peripheral neuritis) offers an anatomic-pathologic basis for the muscle atrophy of rheumatoid arthritis which heretofore could not be explained on the basis of disuse alone.

Heart:

In a total of 152 recently reported necropsies on patients with rheumatoid arthritis, 59 (39 per cent) had cardiac lesions indistinguishable from those of rheumatic fever. Baggenstoss and Rosenberg¹⁰ demonstrated lesions typical of rheumatic heart disease in 16 (53 per cent) of 30 patients. Gross changes were present in the mitral valve in ten, in the aortic valve in six, in the tricuspid valve in two, and in the pericardium in six. Although pathologically identical, the lesions were considered less severe and less widespread than in rheumatic fever.¹¹ This frequent association of rheumatic heart disease and rheumatoid arthritis was verified by the necropsy findings of Fingerman and Andrus³⁷ (19 of 61 cases), of Bayles¹⁵ (6 of 23 cases), and of Young and Schwedel¹¹⁶ (24 of 38 cases).

LABORATORY DATA

Blood Counts:

Approximately three-fourths of patients with rheumatoid arthritis have hemoglobin values below 80 per cent, according to Haden.⁶⁴ Robinson⁸⁹ believes

that the anemia is partially due to simple plasma dilution (hydrema effect caused by a rise in plasma proteins) similar to that which occurs in pregnancy. The leukocyte picture is not characteristic; a mild leukopenia is frequent but occasionally a mild polymorphonuclear leukocytosis occurs. The differential count is rarely altered.

Erythrocyte Sedimentation Rate:

This test is generally accepted by most clinicians as a most useful index of disease activity. But 50 per cent of Short's⁹⁵ early or mild cases had normal rates, and Steinberg and Lowenstein¹⁰⁸ observed patients with hot swollen joints whose rates were normal and patients with clinically inactive disease whose rates were increased. Some investigators believe that a careful clinical evaluation is more dependable than the sedimentation rate both in diagnosis and in following the course of the disease.

Roentgenographic Findings:

Roentgenographic abnormalities (aside from periarticular soft tissue swelling) result from destruction of articular cartilage and from alterations in subchondral bone. When the pathologic process is restricted to the synovial membrane, roentgenograms are negative. It may take months or years for the development of sufficient cartilaginous or osseous change to be recorded on roentgenograms; though pathologically involved, some joints may never show positive x-ray findings. These considerations explain the time interval which exists between the development of localizing physical signs and the appearance of roentgenographic changes.⁶ Only 25 per cent of Short's⁹⁵ patients, observed in an overseas general hospital, demonstrated x-ray changes, and these usually were confined to varying degrees of bone atrophy. A common mistake is to rule out rheumatoid arthritis on the basis of negative roentgenograms. Further, the roentgen alterations are not specific for rheumatoid arthritis, as many different forms of arthritis may exhibit the same basic alterations. Camp²⁰ recognized the roentgenologist's limitations in attempting to differentiate between the various types of arthritis: "The pathologic and x-ray response of joints in various diseases is too similar to permit dogmatic interpretation of the roentgenogram."

Miscellaneous Tests:

The Weltman reaction, a test based on the coagulation of serum proteins in the presence of an electrolyte (CaCl_2), was considered a sensitive indicator of activity in rheumatoid arthritis by Milles and Salt.⁷⁷ But others believed that the test did not reflect the severity of the clinical picture, and Kling⁷⁰ considered the erythrocyte sedimentation rate to be a more accurate guide. The Metzger test was considered valueless.⁵³

Biochemical tests on the cerebrospinal fluid were made by Ludwig, Short and Bauer⁷⁵ on 101 patients with rheumatoid arthritis. The only significant abnormalities noted were increased concentrations of

protein; concentrations of protein were increased (46 to 70 mgm.) in 6.8 per cent of 50 patients with only peripheral joint involvement, 47 to 105 mgm. in 28.6 per cent of 42 patients with rheumatoid spondylitis, and in 15.8 per cent of the total 101 patients.

ETIOLOGY AND PATHOGENESIS

Despite continued research the cause of rheumatoid arthritis remains unknown. All of the currently considered etiologic theories—infectious, metabolic, endocrine, circulatory, psychogenic—lack proof.

Infectious Factor:

Although many clinical features and some immunological findings suggest that infections play a role in the pathogenesis of rheumatoid arthritis, carefully conducted cultivations of the blood and joint fluid have failed to prove that the disease is an infectious process. Fraser²⁶ cultured the blood of 61 patients with rheumatoid arthritis in beef-heart infusion broth. No organisms of any kind were recovered in 58, and in the remaining three diphtheroid bacilli were isolated; streptococci were never recovered. In 61 controls, five positive cultures were obtained, streptococcus viridans in three and diphtheroid bacillus in two. Angevine, Rothbard and Cecil¹ could find no significant organisms in culturing blood, joint fluid, synovia or subcutaneous nodules.

Patients with rheumatoid arthritis had agglutination titers of 1:160 or higher for hemolytic streptococci more often (58 per cent) than did normal controls (14 per cent) or patients with osteoarthritis (28 per cent).³⁵ Titers for serum antistreptolysins in rheumatoid arthritis were not found to be characteristic, whereas, in rheumatic fever they were usually elevated. Davidson²⁹ pointed out that positive agglutinins, antistreptolysins, and skin tests with streptococcal antigens mean only that the patient has been infected with streptococci, not that the arthritis is due to this organism.

Circulatory Factor:

According to Naide and Comroe⁷⁸ the peripheral vascular responses of patients with rheumatoid arthritis follow a characteristic pattern: the basal vascular tone was found to be high and the peripheral vessels to be easily constricted. This perhaps accounts for the thin atrophic skin with cold clammy hands and feet, cutaneous pigmentation, causalgia, hyperesthesia, symptomatic improvement with vasodilating procedures, and perhaps for flare-ups of the disease after emotional upsets or exposure to cold. Rheumatoid arthritis victims were found to be a vasospastic group before the disease actually developed. Normally, high vascular tone is more common in women than men and is most marked in the fingers and toes; this may account for the sex incidence favoring females and the predilection for involvement of finger and toe joints. Steinbrocker and Samuels¹⁰⁹ made oscillometric readings and found that about 60 per cent showed signs of vasospastic arterial disturbance.

Metabolic Factor:

Block and Murrill¹⁶ found no deviations from normal in total sulfur, total nitrogen and amino acid contents of total serum proteins in rheumatoid arthritic patients. Such negative findings appear to invalidate any suggestion that an altered composition of total serum proteins in arthritic patients reflects disturbed sulfur metabolism. The total lipid, total cholesterol and phospholipid contents of the plasma were also found to be normal.¹⁷ A slight but definite negative calcium balance, probably indicative of increased rate of calcium metabolism, was found in each of nine cases of rheumatoid arthritis studied by Ropes, Rossmeisl and Bauer;⁹⁰ the calcium excretion rate varied directly with the degree of decalcification noted roentgenographically.

Endocrine Factor:

There is no conclusive evidence that an endocrine imbalance plays any role in the production of rheumatoid arthritis. The simultaneous occurrence of some endocrine dysfunction is no more frequent than can be explained by chance, according to Davidson.²⁹

Psychogenic Factor:

Opinions varied regarding the importance of psychogenic factors in the etiology, precipitation and clinical course of rheumatoid arthritis. Halliday⁶⁷ was convinced that emotional upsets were frequent precipitating causes of rheumatoid arthritis; a "definite upsetting event" was found antecedent to the onset in nine of twenty patients, and in seven emotional conflicts were thought to have provoked recurrences. In contrast, emotional disturbances were rarely related temporally to the onset in soldiers (1 of 100 cases), less often than other factors such as infections or physical exposure.³⁸

TREATMENT

Management of Foci:

The attitude toward focal infection has become more and more conservative. The majority of clinicians agree that only definite foci should be removed, and then with the view of improving general health rather than curing the disease. Only occasionally does a well developed rheumatoid arthritis show definite improvement following the removal of an obvious local infection; eradication of definite foci should be undertaken "with hope but without promise." Most agree that devitalized teeth with roentgenographic evidence of periapical abscesses should be extracted.^{9, 52, 115} But devitalized teeth showing no periapical rarefaction should be regarded more conservatively;³³ they should be checked roentgenographically at intervals, and before extraction is accomplished the risk of interfering with nutrition by removing necessary mastication surface should be weighed.⁹⁰ Recurrently inflamed tonsils probably should be removed for reasons of general health, but Slocumb and associates¹⁰⁰ reported definite clinical improvement from tonsillectomy in only 5 per cent of patients whose infected tonsils were the

only discoverable focus. Shuster⁹⁷ obtained improvement following sinus surgery in only three of twenty-four early cases (12 per cent) and in one of eighteen (6 per cent) advanced cases. The evidence is distinctly against the importance of the gallbladder, intestines, genito-urinary system and female pelvis as sites of focal infection in rheumatoid arthritis, according to Short and Bauer.⁹⁶

Rest:

Pemberton⁸⁰ believed that rest as a form of therapy was neglected by physicians; a survey showed that fewer than 11 per cent prescribed it. The majority agreed that "complete bed rest" was indicated only in severe, acute or febrile cases,^{46, 56, 58} and during later flare-ups accompanied by local heat and severe pain. For chronic cases a minimum prescription of rest should be ten hours at night and two separate periods of one hour during the day.⁵⁸ During such periods the affected joints should be placed in the best possible position to insure the maximum function should fixed deformity ultimately develop. Daily systematic passive and active exercises to prevent joint stiffness and muscle atrophy are of utmost importance; these should be gentle and non-weight-bearing during the more active stages.

Diet:

Because most patients show a weight loss, a high caloric diet complemented with adequate vitamins and minerals is usually indicated,^{98, 99} but there is no special food substance which should be eliminated or which is specifically required by patients with rheumatoid arthritis.

Vitamins:

There is no known antirheumatic vitamin. However, the daily requirement of vitamins may actually be greater in patients with rheumatoid arthritis than in normal individuals⁷¹ and the addition of extra vitamins as a "booster" to general health can be considered as good practice. The course of the disease evidently is not altered by saturating the patient with any one vitamin. Large doses of thiamine chloride,⁴⁶ ascorbic acid⁹⁹ or vitamin A⁴⁷ fail to influence the symptoms.

Vitamin D:

Because of enthusiastic lay advertising and publicity which "overemphasizes part truths and overlooks the rest of available information," high potency vitamin D therapy recently has been resurrected, and has become a popular treatment for "rheumatic conditions," including rheumatoid arthritis.⁹⁸ Vitamin D in large doses may accomplish reduction of pain in some patients with rheumatoid arthritis,⁹⁹ but little or no objective change is observed.^{47, 46} Reductions in erythrocyte sedimentation rates and alterations in the clinical course are rarely encountered. Although the majority of investigators believed this treatment to be of little or no value,^{111, 69, 66, 18} some^{104, 34, 73} still reported enthusiastic results.

Massive vitamin D therapy is not without danger.⁷¹

Signs of early toxicity include sweet taste, nausea, vomiting, polyuria, polydipsia and occipital headaches.⁹⁸ Severe renal damage due to deposition of calcium in the renal parenchyma with resultant azotemia, albuminuria and cylinduria may result if these symptoms are ignored; two such cases, one with accompanying extensive calcifications about joints, were reported.²⁹ Toxic reactions were said to be encountered less frequently with the electrically activated vaporized sterol (Whittier process) than with ultra-violet irradiated ergosterol (Steinbock process).¹⁰⁴

Analgesics:

Salicylates are the mainstay for relief and usually are as effective or more effective than others. Most patients can tolerate 40 to 60 grains of acetylsalicylic acid daily without any apparent injury.³² Acetphenetidine occasionally may be more effective. Codeine is rarely necessary and morphine should be studiously avoided because of the danger of drug addiction. Demerol given orally was effective in relieving pain in 62 per cent of patients with rheumatoid arthritis investigated by Batterman,¹³ but ambulatory patients often experienced unpleasant side reactions. Although less than for opium derivatives, an addiction liability exists and Demerol probably has little place in the treatment of rheumatoid arthritis.

Physical Therapy:

Proper home physiotherapy with the use of relatively simple apparatuses (radiant heat, contrast baths and douches, wet packs, paraffin baths, hot tub baths, etc.) is of utmost importance in the management of rheumatoid arthritis. Proper use of heat, massage, passive and active exercises can be taught to the patient or his family, and home physiotherapy is something which can be used every day of the year.⁸¹ An electric pad or cheap heat lamp used consistently is of more therapeutic value than elaborate machinery which is only occasionally available.⁷⁰ Light massage over the muscles aids in circulation and relaxation, but the joint itself should not be rubbed. Massage does not increase muscular strength; this can be brought about only by active exercises.⁸² In general, joint exercises should be started as soon as any degree of painless motion is possible. For an acutely swollen painful joint exercises should be delayed, but to wait too long favors development of permanent disability.¹⁰⁷ Exercises must be supervised and graduated; they should not be done too enthusiastically, and if increased pain persists for more than two hours after completion, exercise has been too vigorous;⁸⁸ "purposeless wiggling of joints" should be condemned.⁹⁸ Salicylates given beforehand may aid in accomplishing joint movement. Active muscle training such as muscle setting and resistant exercises are of extreme importance and should be instituted early. Movements involving extension rather than flexion should be encouraged. Hurt⁶⁴ gave the following principles for muscle building: for a poor muscle—exercise with gravity eliminated; for a fair muscle—exercise

against gravity or its equivalent; for a good muscle—exercise against gravity and graded resistance.

Chrysotherapy:

According to Dawson, Boots and Tyson³⁰ chrysotherapy offers greater promise than other forms of therapy, but they warned of its dangers and advocated its use only in the hands of careful clinicians. When carefully given, the good effects of gold salts far outweigh the risk involved.⁵⁸ In the experience of Smyth and Freyberg¹⁰² gold therapy is "valuable in many cases" but "not uniformly beneficial" and "its potential toxicity is a definite objection to general use." Several^{56, 29, 41, 51, 85, 110} cautioned against relying on gold alone; chrysotherapy may be an important adjuvant but the patient should be given also the benefit of the general program included in a conservative regime. Extreme views were held by Key⁶⁹ who believed that chrysotherapy should be employed in "every case" of rheumatoid arthritis, and by Short⁹⁴ who concluded that "it carries a danger of toxicity too great for any but an indispensable drug."

Indications:

Until recently most physicians have restricted the use of gold salts to cases not amenable to more conservative measures. This practice is still adhered to by some,^{115, 98, 105, 26} but others, because of better results obtained, have encouraged its use in early cases.^{102, 110, 58, 22, 56} Chances for complete remissions appear to be better if gold salts are employed early.²¹ Most agree, however, that chrysotherapy should be delayed for at least three to six months after the onset, or until the likelihood of a spontaneous remission seems remote. Gold salts should not be used in any rheumatic affliction other than rheumatoid arthritis, with the possible exception of psoriatic arthritis.^{51, 26}

Contraindications:

Severe diabetes mellitus, disseminated lupus erythematosus, nephritis, ulcerative colitis, hepatic insufficiency, blood dyscrasias and hemorrhagic tendencies are generally accepted as contraindications. Allergy,⁷¹ pregnancy⁵¹ and history of exfoliative dermatitis²⁶ were also mentioned recently, but hypertension was not considered as a contraindication by Stengel.¹¹⁰

Preparations:

Those compounds most commonly used in the United States are listed in Table I.^{58, 45, 105}

Dosage:

Gold is the active principle and since the gold content is different in various compounds dosage must be figured in equivalent gold doses.⁴⁵ A favored treatment schedule with myochrysine (50 per cent gold) has been to inject increasing amounts of the salt, from 10 mgm. to 100 mgm. weekly, until a total of 1.0 to 1.5 grams has been given. Gold thioglucose (Solganal-B Oleosum) also contains 50 per cent gold, but is absorbed more readily, and in order to have

TABLE I.—Gold Preparations in Common Use

Chemical Name	Proprietary Name	Solubility in Water	Physical State	Gold Content Percent
Gold Sodium Thiosulphate	Sanochrysine	+	Aqueous solution	37
Gold Sodium Thiomalate	Myochrysine	+	Aqueous solution	50
Gold Calcium Thiomalate	Calcium aurothiomalate	—	Oil suspension	50
Gold Thioglucose	Solganal-B Oleosum	+	Oil suspension	50
Gold Thioglycolanilide	Lauron	—	Oil suspension	54

an equal amount of gold retained about 150 per cent of the dose for myochrysine is required.⁴⁶ Gold thiosulphate contains only 36 per cent of gold and proportionately larger doses are needed. Because fewer toxic reactions result with smaller weekly doses, most authorities now use doses not exceeding 50 mgm. per week.^{46, 58, 55, 112, 22} Freyberg found that weekly doses of 25 mgm. gave inferior results. Common practice has been to give one, two or more series or courses of gold salts (1000 to 2000 mgm. each) with rest periods of two to six months between courses. The frequency of relapses during rest intervals prompted Hall⁵⁵ to give a single course followed by maintenance doses of 50 to 100 mgm. once a month for six months or longer. This is now a popular plan of treatment and maintenance doses (once every three to four weeks) for periods of one to three years following an initial course are being given by some. With a newer insoluble preparation, gold thioglycolanilide (Lauron), claimed to be substantially less toxic, much larger doses were recommended^{87, 110} (initial doses of 25 mgm., then gradually increasing the weekly doses to as high as 300 mgm. and total dosages as great as 3,750 mgm.).

Mode of Action:

Despite extensive research during the past few years the mechanism of how, why and where gold salt therapy works is unknown.⁴⁵ The results of recent experimental work on the metabolism of gold salts will be reviewed elsewhere.⁶⁰

Results from Chrysotherapy:

Results from recent investigations varied widely but in general about 50 to 70 per cent of patients were reported as becoming symptom free or notably improved. Results are usually better when treatment is begun in the earlier stages of the disease, but many late cases respond favorably and some early cases may be refractory. Ragan and Tyson⁸⁴ have reported their results, based on a three to five year follow-up study as follows: Complete remissions in 13 per cent; improvement in 76 per cent; no improvement in 11 per cent. Other recently published results are summarized in Table II.

Toxic Reactions:

Unfortunately, toxic reactions provide a definite drawback to the universal use of gold compounds for rheumatoid arthritis. Such reactions include: dermatitis (mild rash to exfoliative type), ulcerative stomatitis, ulcerative colitis, hepatitis, thrombocytopenic purpura, agranulocytosis, aplastic anemia, bronchitis, etc. Usually they are not encountered until after several hundred milligrams of the drug have been given⁴⁶ but may occur after very small initial doses (20-30 mgm.), during a second or third series, or even weeks after treatment is completed.¹⁰⁶ Ten authors recently reported the percentage of toxic reactions in their cases; the average was 37.1 per cent, with percentages ranging from 8.2 to 61.0. The majority of these were minor and disappeared

TABLE II.—Recently Published Results of Chrysotherapy

Authors	Number Patients Treated	Arrested or Markedly Improved (Percent)	Moderately Improved (Percent)	Unimproved (Percent)	Preparation
Dawson, Boots & Tyson.....	100	51	48	15	Myochrysine
McCarty.....	36	78	....	....	Myochrysine
Logeheil & Hoffman.....	74	65	....	14.7	Gold sodium thiosulphate
Smyth & Freyberg.....	80	61	....	....	Myochrysine, gold sodium thiosulphate, gold sulfide
Short.....	31	19.1	....	....	Solganal-B & Myochrysine
Thompson & Wyatt.....	26	61.3	....	37.6	Myochrysine & gold sodium thiosulphate
Gardner.....	250	70-80	....	....	Solganal-B
Cecil, Kammerer & De Prume.....	197	66	20	14	Myochrysine, Solganal-B & gold sodium thiosulphate
Price & Leichtentritt.....	101	60	....	....	Myochrysine & Solganal-B
Ray.....	50	50	25	12	Calcium thiomalate
Graham & Fletcher.....	95	66	20	13	Myochrysine
Cohen & Dubbs.....	122	53	....	13	Solganal-B
Hartung.....	264	54	....	....	Myochrysine
Rawls, Gruskin, Ressa, Dworzan & Schreiber.....	100	53	21	14	Solganal-B
Fraser.....	57	42	21	18	Myochrysine
Robinson.....	200	50	....	25	Myochrysine
Stengel.....	30	56.6	23	10	Lauron
Furlong.....	16	62	13	25	Gold sodium thiosulphate
Winkler.....	32	46.9	....	....	Myochrysine

promptly upon discontinuance of the drug, serious reactions being encountered in not more than 5 to 10 per cent of cases treated.³⁰ A few fatal reactions have been reported recently; one from ulcerative enteritis,²² one from thrombocytopenic purpura,³⁰ one from multiple small cerebral hemorrhages.¹⁰⁶ The current mortality rate has been estimated to be between 0.38 and 0.43 per cent.⁶¹

Treatment of Toxic Reactions:

Agranulocytosis, a toxic reaction capable of causing death, may now be controlled with penicillin.⁵ Serious reactions including severe exfoliative dermatitis, thrombocytopenic purpura and agranulocytosis have responded favorably and rapidly to intramuscular injections of British Anti-Lewisite (BAL), according to recent reports.^{23, 74, 83} These preliminary reports give promise that BAL may prove to be an effective weapon against serious gold reactions.

General Conclusions on Chrysotherapy:

These were drawn by Hench:⁶¹ "The toxicity inherent in chrysotherapy makes it unsuitable for use by average practitioners without special experience. Gold salts are not constantly effective, are not specific, are at best a palliative and have not been proved to be a necessary adjunct to routine measures. A strong counterargument is that gold may well accomplish in six months or less what nature or general measures may take six years to accomplish. Surgeons and patients do not hesitate to accept the risks of cholecystectomy or hysterectomy to relieve symptoms much more bearable than those of progressive rheumatoid arthritis. Yet the mortality rates of such procedures are as great or several times greater than that of chrysotherapy. The use of gold salts seems entirely justified (1) in cases of progressive rheumatoid arthritis unrelieved by a reasonable but not too long a period of older and safer methods of treatment, (2) when the patient clearly understands and accepts the risk, and (3) when the physician is in a position to give the treatments with the necessary clinical and laboratory safeguards."

Artificial Hyperpyrexia:

Current opinion is that prolonged febrile reactions produced by the Kettering hypertherm or by electromagnetic induction are of little value in rheumatoid arthritis. Although occasionally transient symptomatic improvement may ensue, such improvement is seldom sustained.³⁶ Geiger⁴⁹ could see no advantage of artificial prolonged fever over typhoid vaccine reactions.

Roentgen Therapy:

The results of roentgen therapy in peripheral rheumatoid arthritis are disappointing when compared with the rather encouraging results of such treatment in rheumatoid spondylitis.¹⁰³ But local roentgen therapy (600 to 900 "r") to individual large joints which are persistently painful and resist other forms of treatment (such as boggy knees and painful re-

stricted shoulders) may, not infrequently, render significant relief.^{112, 68}

Kaplan⁶⁵ found radon ointment "absolutely ineffective and useless" because it had little penetrating power. Conclusions were that "to assume it can influence the underlying joints or bones is entirely erroneous."

Vaccines:

The trend is definitely away from the use of vaccines in the treatment of rheumatoid arthritis, even among some formerly enthusiastic supporters.⁴⁶ In general, "vaccines have made out a bad case for themselves,"³² and one author⁷⁹ believes them to be harmful because the patient is allowed to "drift into a hopeless and helpless condition when other measures might have been used successfully." But a few proponents still exist and they continue to publish good results. Such results appear to be about the same regardless of what vaccine is used; e.i., 75 per cent "definite improvement" with intravenous streptococcus vaccine,¹¹⁵ 80 per cent "marked improvement" with vaccines prepared from several strains of diphtheroids,¹⁹ varying degrees of improvement in 76 per cent with streptococcus-staphylococcus combined antigen.¹¹⁴ To rheumatologists who use accepted criteria for the diagnosis of rheumatoid arthritis, who use objective signs as well as subjective symptoms as standards for improvement, who are cognizant of the natural fluctuations in the clinical course of the disease, and who base results on controlled studies, such claims for vaccines appear extravagant indeed.

Antibiotics:

The two antibiotics now commonly used for various infections, penicillin and streptomycin, have been of no value in rheumatoid arthritis. Boland, Headley and Hench⁴ gave penicillin (daily doses from 120,000 to 320,000 Oxford units and total doses from 1,800,000 to 3,250,000 units) to ten soldiers with early but progressive rheumatoid arthritis and found the results to be negative. Seven of the ten cases showed no improvement, one patient was worse, one showed slight subjective but, no objective improvement, and one demonstrated moderate objective and subjective improvement in some, but not all, of the involved joints. Because of the capricious nature of rheumatoid arthritis, the improvement in these two cases was regarded as unrelated to the penicillin. Comroe's²⁵ results were the same; six patients treated for periods of two to four weeks received no benefit.

Antireticular Cytotoxic Serum:

The so-called "A.C.B. Serum" ("Russian serum") of Bogomoletz and Strazhesko was tried by Bach⁸ in 35 cases and by Freyberg⁶³ in 30 cases of rheumatoid arthritis. The results were essentially negative.

Sulfonamides:

These have proved useless.⁴

Sulfur:

There is no biochemical or metabolic indication of need for, or benefit from sulfur medication, according to Freyberg.⁴⁶ Treatment with sulfur preparations has been abandoned at most clinics.

Neostigmine (Prostigmine); Physostigmine:

Relaxation of muscle spasm, relief of pain and increased motion in 16 of 19 cases of rheumatoid arthritis was claimed by Trommer and Cohen¹¹³ with the use of neostigmine bromide given orally and/or subcutaneously. Later even better results were reported with physostigmine salicylate given subcutaneously. However, Balboni, Hollander and Kydd¹² were unable to substantiate Trommer and Cohen's results and concluded that "prostigmine induces no significant relaxation of muscle spasm in rheumatoid arthritis." At the 1946 meeting of the American Rheumatism Association several rheumatologists expressed disappointment with this type of treatment.⁶³

Orthopedic Measures:

Simple splints made of plaster aid greatly in preventing deformities and should be employed early while medical measures are being instituted. During acutely painful stages plaster molds are most useful but must be removed at least once daily to allow motion.^{58,112} Prolonged splinting to the point of marked muscle and bone atrophy was warned against.^{115,101} Flexion contractures of knees frequently may be corrected by a series of posterior plaster shells; traction and manipulation, wedging casts and forceful stretching are ineffective and often harmful.⁷⁵

The indications for various orthopedic procedures designed to correct flexion contractures of knees were outlined:^{72,81} manipulation under anesthesia for mild deformities due to capsular contractures without serious joint damage; posterior capsulotomy for resistant flexion contracture with little destruction of articular surfaces; osteotomy for fixations in bad position for weight bearing and with extensive destruction of joint surfaces; arthroplasty for stiff joints due to bony ankylosis; arthrodesis for severely destroyed joints with persistent pain on weight bearing in patients who must stand at work, where stability is more important than movement. Kuhns obtained good results from posterior capsulotomies in 40 per cent of cases, from osteotomy in 36 per cent and from arthroplasty in 10 per cent. Synovectomy is sometimes resorted to for persistently swollen boggy knees without extensive articular destruction but the results are variable. Ghormley and Cameron⁵⁰ reported excellent results from this procedure in only 15.6 per cent, some improvement in 40.6 per cent and poor results in 40.6 per cent of cases.

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California Cancer Commission Studies*

Chapter VII

Childhood Cancer

JOHN M. KENNEY, M.D., Sonoma

IN the literature one frequently encounters the statement that childhood cancer[‡] is rare. *This is not true.* Cancer is one of the most important causes of death in children (Table I) and approximately 1.5 per cent of all cancer deaths are in the age group 0-14.¹⁴ Unfortunately it is also frequently stated that childhood cancer is a hopeless disease for which all forms of treatment are of little or no value. This likewise is not true. *In many cases it is the time lag between onset of symptoms and recognition of the fact that a cancer exists—all too often many months—that renders hopeless the treating of the lesion, because it permits the disease to spread to such a degree that adequate therapy is impossible.* Early diagnosis and the immediate institution of proper treatment will materially reduce this death rate.

TABLE I.—Deaths from Certain Causes
United States, 1935*

Disease	Age 0-4	Age 5-9	Age 10-14	Total
Cancer†	393	243	267	903
Typhoid fever	165	242	363	770
Poliomyelitis, acute	323	201	192	706
Tetanus	230	173	156	559
Acute rheumatic fever..	103	332	328	763
Diabetes mellitus	113	114	240	267
Acute endocarditis	86	126	179	391
Acute myocarditis	90	35	34	159
Chronic myocarditis	37	57	78	172

*Mortality Statistics 1935, U. S. Dept. Commerce, U. S. Govt. Printing Office, Washington, 1937 (Table 7, page 200).

†In addition there were 129 deaths from Hodgkin's Disease, and 699 deaths from Leukemia in age group 0-14, which should be classified as Cancer deaths. The total, then, is actually 1,731, or more than twice that of the other listed causes.

Copied from Dargeon.⁶

The early symptoms⁶ of childhood cancer are often vague and obscure, and frequently are similar to those seen in more common childhood diseases. It is only in the late phases that the commonly described signs of anorexia, weight loss, anemia, large palpable masses, etc. are seen. *To diagnose it early, one must suspect its possibility in any child with:*

1. Enlarged lymph nodes which have persisted beyond the usual few days when they are due to infection, (Hodgkin's disease, leukemia, lymphosarcoma, nasopharyngeal cancer),

2. Intermittent fever and some anorexia and weight

‡The word "Cancer," as used in this article, signifies all types of malignant neoplastic lesions, irrespective of their tissue of origin.

*Organized by the Editorial Committee of the California Cancer Commission.

loss (Hodgkin's disease, lymphosarcoma, leukemia, Ewing's tumor, Wilms' tumor),

3. Nasal obstruction after two years of age, especially if the adenoids cannot be shown to be responsible, (nasopharyngeal tumor),

4. Vague, persistent slowly increasing bone pain in one extremity, even though no tumor is palpable (bone sarcoma),

5. Dilatation of one pupil, especially if a white or greyish reflex is present (retinal glioma),

6. Recurrent dizziness, headache, vomiting without nausea, unsteadiness of limbs, partial loss of vision, sensory changes, lack of sphincter control (brain and spinal cord tumors),

7. Bleeding from any body orifice (nasal, rectal, vaginal cancer),

8. One tonsil larger than the other (lymphosarcoma, lymphoepithelioma),

9. Painless masses of any kind in any location (Wilms' tumor, neuroblastoma, teratoma testis, sarcoma of muscle, fat, and fascia, lymphoblastomas). In other words, cancers of all types occur in children and no organ can be considered immune. *The most important single factor in the early diagnosis of cancer, thus, is that the physician be constantly on the alert for its occurrence, and that his mind be so conditioned to suspecting its presence that he includes it in virtually every differential diagnosis.*

The statistics dealing with the most common forms of cancer in childhood and their anatomical location are somewhat at variance, (Table II),⁶ but it can be said that those most frequently encountered are:

1. Cancer of the Lymphatic System
 - (a) Lymphatic leukemia
 - (b) Hodgkin's disease
 - (c) Lymphosarcoma
2. Cancer of the Bone
 - (a) Osteogenic sarcoma
 - (b) Endothelioma (Ewing's tumor)
3. Cancer of the genitourinary tract
 - (a) Adenosarcoma of the kidney (Wilms' tumor)[†]
 - (b) Teratoma testis
4. Retinal Glioma[†]
5. Cancer of the Central Nervous System
 - (a) Brain tumors, especially of the cerebellum
 - (b) Spinal cord tumors
 - (c) Neuroblastoma sympatheticum, especially of the adrenal
6. Cancer of Soft Parts
 - (a) Sarcoma of muscles, nerves, and fat.

† These lesions almost never occur after the age of 5.

TABLE II.—*Topographical Distribution in 1538 Cases of Childhood Cancer*

C. N. S.	370	Soft Tissue Sarcoma.....	100
Bone	317	Pharynx	32
Eye	206	Skin	30
G. U.	205	G. I. Tract	31
Lymphoid	185	Miscellaneous	48

In addition to the above list there are numerous reports in the literature of cancer in children involving the stomach, colon, lung, liver, ovaries, bladder, penis, prostate, tongue, tonsil and so on. *To repeat, cancer may occur in children in any of the types known in adults and with the same symptoms, and no organ can be considered immune.* Its early diagnosis and its cure are dependent on an alert and conscientious physician.

TYPES MOST FREQUENTLY ENCOUNTERED

Cancer of the Lymphatic System

Because of the sanitary regulation governing milk handling, tuberculous adenitis is not commonly observed in this country. Lymphoblastomas are probably as frequent as tuberculous adenitis in American children. The seriousness of lymphoblastoma requires that it be given priority in the differential diagnosis of every case of persistent (more than two weeks duration) cervical lymphadenopathy.

1. *Hodgkin's Disease*⁵

In its clinical features of lymphadenopathy, pruritus, cachexia, anemia, hepatomegaly and splenomegaly, it does not differ materially from its counterpart in adults. An eosinophilia frequently is present which is not often encountered in adults. One should be suspicious of the possibility of Hodgkin's disease in any child with enlarged lymph nodes which persist for more than a month, or who has a history of recurrent lymphadenopathy. A child with intermittent or recurrent fever may have this disease but the lymphadenopathy not be apparent because only mediastinal or retroperitoneal nodes are involved. In such instances, x-rays of the chest and careful palpation of the abdomen should reveal the true state of affairs.

The diagnosis is made by excision and examination of an enlarged lymph node, preferably from the cervical or axillary area. This should be done in any child with persistent or recurrent lymphadenopathy and *if negative should be repeated.*

Treatment is by divided doses of x-rays. If only a single and isolated group of nodes is involved, radical surgery or intensive x-ray therapy should be considered. There is a growing number of patients,¹⁷ who, after radical destruction of the solitary group of nodes involved, have survived long periods of time without recurrence of the disease. Radio-active phosphorus has apparently not proven to be of any more benefit in adult cases than x-ray therapy. Nitrogen mustard compounds have occasionally been of benefit.

The prognosis is grave. However, a few patients live surprisingly long periods of time under conservative treatment. Craver⁵ reports four patients living, three, three and a half, three and a quarter and thirteen and a quarter years, respectively, out of eight cases. Thus in the presence of a diagnosis of Hodgkin's disease, one should not adopt a hopeless attitude, but should pursue an intelligently planned course of treatment. If this were to be done in each case, a few might have long term arrests, and most would have a comfortable existence.

2. *Lymphosarcoma*⁵

In general, the clinical features of this disease are about the same as in Hodgkin's disease. Clinically, the differentiation may be impossible and the diagnosis is usually established only by excision of an involved lymph node. When there is symptomless enlargement of one tonsil, lymphosarcoma may be present.

Treatment is by divided doses of x-rays. As in Hodgkin's disease, if only one isolated group of nodes is involved, serious thought must be given to either intensive radiation therapy, or radical surgery. Radio-active phosphorus has apparently been about as efficacious in this disease as x-ray therapy.⁹

The prognosis is much poorer than for Hodgkin's disease and few live more than two years.

3. *Lymphatic Leukemia*⁵

The history of these cases frequently begins with an episode suggestive of flu or an acute upper respiratory infection. There may or may not be lymphadenopathy, splenomegaly, and hepatomegaly at this time, the presence of which should, of course, immediately suggest the possibility of a malignant neoplasm of the lymphatic system. Usually, however, because of the prolonged recovery period, laboratory studies are initiated, in the course of which the cell count is depressed and not elevated; this is almost the rule rather than the exception. The smear, however, shows almost 100 per cent lymphocytes with many young forms.

Treatment is very unsatisfactory. These patients are quite sensitive to radiation and tolerate, if at all, only the smallest doses. Radio-active phosphorus has been of no apparent value in these cases, and possessed only the advantage of being tolerated better than other forms of radiation.¹⁰ Fresh plasma¹ in relatively large doses—250 cc. one to two times a day—frequently stops hemolysis, and if given just prior to a transfusion will often prevent the hemolysis that usually follows such a procedure.

The prognosis is very poor. In children, leukemia runs an almost uniformly acute course, and few patients live more than six months.

BONE CANCER³

The first symptom is usually an insidious, intermittent pain, often worse at night, localized to one part of the skeleton, and ordinarily without systemic reaction or palpable mass. It is commonly described as deep and boring in character, or as a tearing and

stretching pain. As the disease progresses this pain gradually increases in severity until it dominates the patient's life. Because of the rarity of bone cancer, this pain is generally treated initially as a neuritis, or as "rheumatism" or as "growing pains," and the true picture not discovered until it announces itself by the presence of a mass. *Pain localized to one area of the bony skeleton and lasting more than a few days should lead to the suspicion of a bone sarcoma.* X-ray studies in several planes, and over a large area above and below the site of pain, should be made, and, if inconclusive, should be repeated and stereoscopic views secured. If the films show no alteration in bony structure, sarcoma can be ruled out. However, interpretation of films in early cases may be quite difficult, and if there is even a suspicion of alteration in bony structure, the films should be repeated at short intervals until the diagnosis of bone sarcoma can be definitely proven or discarded. A blood phosphatase^{19,20} estimation may be of value in making the diagnosis as it is sometimes elevated when a bone sarcoma is present. However, phosphatase readings in children under 15 are difficult to evaluate because the normal range for them is 5 to 14 Bodansky units. No diagnostic reliance, therefore, should be placed on this determination, if the readings are in the normal range.

Differentiation between the pain of bone cancer and that due to osteomyelitis is usually possible because of the acute onset and severe systemic reaction that accompanies the latter disease. However, as will be discussed later, sub-acute or chronic osteomyelitis can be confused with a Ewing's tumor. In acute osteomyelitis, there should be a prompt response to specific penicillin therapy, which would not be true in a bone neoplasm.

Differentiation from rheumatic disease should likewise be possible because of the migratory aspect of the latter, its frequent involvement of more than one joint, the presence of local heat and swelling in the painful area, and the marked systemic reaction that usually accompanies this disease.

Neuritis can be confused with the pain of bone cancer, but should be differentiated from it by the character of the pain, its more widespread distribution, and the tenderness of the involved nerve with exacerbation of the pain on its manipulation.

"Growing pains" as a definitive diagnosis has no place in diagnostic terminology.

Once a tentative diagnosis of a bone neoplasm has been made it can only be confirmed or disproved by biopsy. This should be performed only by one skilled in the procedure. During the period of time in which the diagnosis is being established, the bone involved should be immobilized to reduce as much as possible the hazard of metastasis from trauma. Palpation of the lesion should be reduced to the minimum.

1. Osteogenic Sarcoma^{3,4}

This tumor usually originates in the metaphyseal area and most often affects the femur, humerus, and tibia, in the order named. The various diagnostic

points of pain, changes in bony texture on x-ray examination, presence of a palpable tumor, and alteration of the blood phosphatase level, have already been discussed.

Osteogenic sarcoma is radio-resistant and not suitable for treatment by x-ray. Amputation offers the only real hope for cure and, because of this tumor's tendency to travel up the marrow cavity, should be done above the joint next above the lesion. An exception to this rule is in the case of lesions at the distal end of the femur which show no spread up the marrow cavity. In such cases high thigh amputation is permissible. In some instances of widespread disease a palliative amputation will be needed to relieve the patient of intolerable pain.

The efficacy of Coley's toxin in this disease is doubtful but, because occasional startling results have followed its use, it is probably wise to use it postoperatively. The value of radio-active phosphorus and radio-active strontium in this lesion is not known.¹⁸

The prognosis is poor but should be improved if earlier diagnosis is made. About 15 per cent of the treated cases live five years or more without recurrence and are presumably cured.

2. Endothelioma (Ewing's Tumor)¹⁰

The symptoms and findings are similar to those given in the preceding paragraphs. The differentiation from an osteogenic sarcoma by x-ray may be impossible, and definitive diagnosis frequently rests upon a biopsy.

The lesion is not primarily medullary in origin as so often described, but is initiated in the subperiosteal or cortical bone, usually in the diaphysis. It may attack any bone, but has a predilection for the tibia, femur, pelvis, humerus, fibula, and ribs, in the order named. Because it is frequently associated with fever, leukocytosis, tenderness, and fusiform enlargement of the bone, and thus simulates an inflammatory process, the possibility of an endothelioma must be considered in every case of suspected subacute or chronic osteomyelitis. *Its x-ray appearance is subject to wide variation, and may resemble most any type of bone lesion.* It is only by keeping such factors as these in mind, and by a willingness to do an early biopsy, that an early diagnosis will be reached in this disease.

While these tumors are quite sensitive to radiation, experience has shown that radiation alone is almost always unsuccessful in controlling this disease. Amputation or resection of the involved bone is essential either with or without preoperative irradiation. Coley's toxins should be given postoperatively as they may be of real value in treating this disease.

The prognosis is much poorer than for osteogenic sarcoma and few survive more than two years. With earlier diagnosis the prognosis might be materially improved.

CANCER OF THE GENITO-URINARY TRACT^{7,11}

Most childhood cancers of this system give rise to few if any symptoms until late in the disease when

a mass is found by accident. The hematuria, dysuria, and frequency, commonly seen in adults, is absent in children because the lesions are usually sarcomas and thus do not involve surface structure.

1. Adenosarcoma of the Kidney (Wilms' Tumors)

The presenting symptom in about 60 per cent of these cases, is an accidentally discovered mass. Some cases, about eight per cent, have hematuria or dysuria and a few will have unexplained fever. The average age at discovery is between two and three years, the lesions being quite rare after seven. The only real hope for early diagnosis of this lesion is in well baby clinics and well baby check-ups by private physicians. Once the mass has been found it must be differentiated from other retroperitoneal tumors, hydronephrosis, and polycystic kidney. This is best done by intravenous and retrograde pyelography to show the deformed and displaced kidney pelvis on the side of the mass. These tumors are usually well encapsulated, but handling should be reduced to an absolute minimum to avoid the possibility of capsular rupture and massive local spread of the lesion. Wilms' tumors have a marked tendency to invade blood vessels and early metastases are frequent. For that reason treatment should not be delayed.

Surgical removal of these tumors is highly preferable to irradiation therapy, and should be done as soon as possible after the diagnosis is made. Size in itself is no bar to surgery, but this operation should only be performed by a highly skilled surgeon. X-ray therapy after operation is indicated.

The prognosis is not good only because so many of these patients have metastases at the time the primary lesion is discovered. However in one group of 20 patients, treated by x-ray alone,⁸ there were five 5-year survivals, and in another group of 60 patients treated by surgery,¹¹ eight survived more than five years, and another six were alive and without cancer for from two to four and a half years at the time of the report. These figures indicate that with early diagnosis and proper treatment a high cure rate is possible.

2. Teratoma Testis⁷

The usual presenting symptom in this lesion is a painless swelling of one testicle. Unless metastases are already present and the cause of symptoms peculiar to their location, no other symptoms will be found.

Orchidectomy is the preferred treatment. Some men suggest a preliminary course of intensive x-ray to the testicle, and follow the orchidectomy with a course of radiation therapy to the area of lymphatic drainage. The radical lymph node dissection of Hinman is infrequently performed.

The prognosis is good. If no metastases are present when the diagnosis is made, about 75 per cent will live five years or longer, and if metastases are present, about 25 per cent will survive five years, without evidence of recurrence of the tumor.

RETINAL GLIOMA^{12,15}

This is a common form of childhood cancer. Because they are believed by many to be a congenital type of tumor, it is possible that in many instances they could be detected at birth by careful ophthalmoscopic examination. The first symptom in nearly every case, is a dilatation of the pupil. This inequality of the pupils unfortunately, is frequently disregarded by the physician until the tumor has grown large enough to be visible through it as a white or grey reflex ("cat's eye"). Neither the dilatation nor the reflex is always diagnostic of glioma, but the presence of either calls for an immediate and careful examination by a competent ophthalmologist. The very late symptoms and findings are glaucoma, distension of the globe, and pain. In over half of the cases, the objective findings are sufficient for diagnosis before the age of two. Occurrence of this lesion after the age of five is exceedingly rare. It is bilateral in more than 25 per cent of the cases.

Treatment is either surgical enucleation of the eye, radiological, or both. The method selected will depend entirely upon the size of the tumor when discovered, what vision, if any, is present in the eye, and whether or not the lesion is bilateral.

The prognosis in these cases is good. At the present time, about 50 per cent live five years or more without recurrence and so are presumably cured.¹⁵ This percentage might well be increased by earlier diagnosis.

CANCER OF THE SOFT PARTS¹⁵

These are many and varied and in general it may be said that all lumps in fat, muscle, and fascia should be regarded with suspicion. While obviously the vast majority of such tumors will be sebaceous cysts, lipomas, angiomas, neurofibromas, fibromas, and so on, all should be watched. Any that show any signs of growth, or which seem immobile or attached to the skin as though infiltrating in type, should be widely excised and pathologically examined. The usual soft part malignancies are rhabdomyosarcoma, liposarcoma, fibrosarcoma, and neurogenic sarcomas.

The treatment of soft part sarcoma is amputation or wide surgical excision with the sacrifice of a wide area of normal tissue without regard for the disability to be caused by the procedure. These lesions are usually quite radio-resistant.

The prognosis is good if the lesion is diagnosed while still suitable for surgery. These lesions are frequently slow to metastasize and radical excision offers an excellent chance for cure.

Pigmented lesions of the skin are frequent and ordinarily of no significance. However melanomas are seen in children and any pigmented lesion which begins to grow should be widely excised immediately. *Under no conditions should a pigmented lesion be subjected to cauterization of any kind.* If a diagnosis of melanoma is made, a radical dissection of the tributary lymphatics should be performed about six weeks after the excision of the lesion. These lesions are quite radio-resistant.

CANCER OF THE CENTRAL NERVOUS SYSTEM¹⁶

Approximately 20 per cent of all the tumors of this area occur in the first two decades of life, the majority being primary in the cerebellum. While it is believed that most of these began in early childhood, the diagnosis is usually not made before adolescence. It is therefore of the utmost importance that doctors be aware of the earliest symptoms of such lesions and be prepared to instigate proper diagnostic procedures at once. The earliest symptoms in brain tumors are vomiting without nausea or other digestive disturbances, headache, and unsteadiness of the extremities. There may be perceptible enlargement of the head. Symptoms of this type should lead to a careful neurological and ophthalmological examination which if inconclusive should be repeated within two weeks and if still inconclusive the patient should be sent to a competent neurosurgeon. Pituitary tumors have their own special syndrome of gigantism, changes in hair, skin, and fat distribution, and disturbances of basal metabolism and sexual function. If the tumor is large enough to encroach upon the optic chiasm, there is progressive blindness and temporal hemianopsia. X-rays of the skull may be of value by showing enlargement of the sella turcica, widening of a suture line or bony erosion.

Cord tumors are more difficult to diagnose because they produce few symptoms other than sensory changes, until the loss of motor function appears. Where this appears is, of course, dependent upon the site of the tumor. Any child with weakness of the extremities or with apparent partial loss of control of bowels and bladder, should have a careful neurological study. Again, if the results are inconclusive, the patient should be sent to a competent neurosurgeon.

The treatment of these lesions is both surgical and radiological and is dependent upon the location and size of the tumor.

The prognosis is variable with the histologic type found at operation. As in all forms of cancer, the earlier the diagnosis, the better the prognosis.

SUMMARY AND CONCLUSIONS

Cancer in childhood, while said to be a rare disease, is one of the most important causes of death before the age of 15. Its early signs and symptoms are frequently obscure and are often similar to those of common childhood ailments. The long time lag between onset of symptoms and beginning of treatment frequently allows the lesion to progress to an untreatable stage and is partly responsible for the prevailing impression that childhood cancer is incurable. Early diagnosis, through a high index of suspicion on the physician's part, will bring about a higher rate of cure. The commonest cancers are lymphoblastomas, bone sarcoma, Wilms' tumor, reti-

nal glioma, brain and spinal cord tumors. The overall percentage of cures in childhood cancer is not high but it has been shown that prompt and vigorous treatment in certain varieties will save 25 to 50 per cent of cases.

Chapter VIII of the Cancer Commission Studies, "Malignant Lymphoma" by Angus Wright, M.D., and Chapter IX "Myeloid Leukemia" by Gurth Carpenter, M.D., will appear in this section in the December issue of CALIFORNIA MEDICINE.

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EDITORIALS

Blood Banks in California

Confusion approaching some of the war-familiar scenes of yesteryear appears to have resulted in many places because of the recently announced plan of the American Red Cross to "establish" a nationwide system of blood banks for public use. Several California communities have already suffered from this uncertainty and much debate is still going on in many circles.

Briefly, the story is that the American Red Cross, seeking to perpetuate a wartime program in peacetime, has voted to set up a nationwide program of blood procurement, processing and distribution—all free. Dr. Ross McIntyre, former Surgeon-General of the Navy, has been retained as director of the program and the conditional approval of the American Medical Association has been secured. The conditions, set up by a cautious A.M.A. House of Delegates, required that approval of the local county medical society must be secured before the Red Cross would move into any community.

In practice, the A.M.A. conditions seem to have been short-circuited in some communities. The Red Cross maintains a large and active staff of field workers, some of whom have apparently been overzealous in their efforts to get the blood bank program started. By moving swiftly—and they are full-time paid employees—these representatives have swept some communities and local county medical societies off their feet, have secured the necessary county society approval and initiated operations. Other county societies have proceeded more cautiously and delayed their decisions pending adoption of a statewide policy by the California Medical Association. Such a policy is now available.

California has pioneered in the establishment and

operation of community blood banks. The state has also fostered the establishment of banks in public and private hospitals; as of last November there were five community blood banks in California, nine in county hospitals and fourteen in private hospitals. Thus a vast aggregate of experience has already been gained and is available for other communities which contemplate the operation of blood banks. For processing the blood, there are the facilities in the community banks, plus those in public and private hospitals, plus those in two large commercial laboratories.

This combination of procurement centers and processing facilities is eloquent proof of the presence of both know-how and equipment for proper blood procurement, processing and distribution in California. Added proof, if needed, comes from the fact that all these blood banks suspended publicity during the war years, in order that the Red Cross blood procurement program for the armed forces might have the entire publicity field to itself.

Unquestionably, the tremendous publicity incidental to the Red Cross wartime blood procurement program, plus the expanded use of blood and its derivatives engendered by the war, have increased our consciousness of the benefits of blood. With such background, steps were taken many months ago by the California State Department of Public Health to encourage a statewide system of blood banks, so located that blood and its fractions could be easily and rapidly available to any point of need. This system was devised by representatives of the health department, the C.M.A., the Association of California Hospitals and others, acting jointly in the public interest. The findings of the committee were pub-

lished and presented to the Governor and the 1947 session of the State Legislature. Under the program adopted, the State Department of Public Health would act as "paterfamilias" in encouraging the establishment and operation of community blood banks, the existing facilities for processing blood would be used to their capacity, and the medical societies would cooperate in the procurement, processing and distribution of blood products.

The proposed program of the American Red Cross would eliminate this entire program and substitute for it a new system. Rather than building on the foundation which is already functioning, the Red Cross system would ignore it and build a new edifice.

Taking cognizance of these facts, the Council of the C.M.A. has adopted a set of principles for blood banks in California* and has advised county medical societies and others of the basis on which blood banks in California merit medical approval. These

* See Council minutes, page 341, this issue.

principles reiterate the soundness of the State Department of Public Health program, the fact that blood banks can best operate as non-profit community enterprises, and that civic and other organizations can cooperate fully in stimulating the interest of donors. Further, these principles state that in the belief of the C.M.A. Council the functions of the American Red Cross do not include the procurement and processing of blood and its derivatives, but should be confined to the "procurement of donors and the transportation of blood." The interest of the American Red Cross in these phases of the program is recognized with appreciation.

Here is a clear set of basic principles for the establishment, maintenance and implementation of blood banks throughout California. It is hoped that the confusion which has been surrounding this important project may now disappear and the communities of the state move forward to real accomplishment for the public benefit.



Mr. DeVoto Thinks—This Far

In the September issue of *Harper's Magazine* appears an article entitled, "Doctors Along the Boardwalk," by Bernard DeVoto. Written as the observations of an outsider at the Atlantic City A.M.A. centennial meeting, the article hits the high spots of the convention, comments on the scientific meetings, the excellent technical and scientific exhibits, the medical films and other appurtenances of a large and—according to competent observers—wholly successful scientific gathering.

From a literary point of view, the article is admirably done. The author, a former instructor in English at Northwestern University, has graduated from the academic world into the realm of writers and has performed creditably in this effort. His most recent novel, *Mountain Time*, is concerned with the life of a surgeon, which fact is claimed by his magazine publisher as making him a well qualified observer of a medical meeting.

Mr. DeVoto skips from one portion of the A.M.A. session to another with considerable agility and humor. He takes up the travels of "Old Doc" from anyone's home town and carries him through the meetings and exhibits, even down to his standing in line to get his initials stamped on a plastic case for a package of Camels while across the exhibit hall he listens to the exhortations of Philip Morris. The ribbing is gentle but present, honest and probably deserved. "Old Doc" is at least given credit for having some brains in his head and representing a slightly different type of convention attendant from those at other notable national gatherings.

Throughout the course of that much of his article Mr. DeVoto saw fit to stick to his reportorial assign-

ment and to record his actual observations in a well-mannered story employing a vocabulary of charm, power and breadth. However, when he gets into the A.M.A. House of Delegates, into the business part of the meeting, he trips over himself quite badly. Here he exhibits a bias which could scarcely have come to him naturally, but which must have been planted and carefully nurtured in his mind. Here he forgets his role as a reporter and turns propagandist. Here he exhibits, for the readers of *Harper's Magazine* to see, the exact type of intellectual approach to a broad public problem that he finds abhorrent in the doctors meeting as A.M.A. Delegates.

Mr. DeVoto's comments on the House of Delegates are pretty well concentrated on a discussion of compulsory health insurance. And, while he sees fit to mention some *con* arguments in the process of dismissing them, he takes it upon himself to bring out all the *pro* side of the picture and even to bring in some outside comments and quotations to bolster his case.

He speaks of the "party line" of the House of Delegates, referring to medicine's attitude toward socialized medicine as "so unrealistic that it suggests the need of psychiatric scrutiny." He ridicules such medical tenets as the free choice of physician and the medical desire to prevent third party intervention between the physician and his patient. He brushes aside the medical desire to preserve sound medical practice as an insistence on "complete, unsupervised control of any health program that may evolve." He falls for the old claims about "preventive medicine," pontifically declares that compulsory health insur-

ance is a *sine qua non* for the American people to receive medical care, and insists that medically-sponsored prepayment plans have intentionally set the rates for voluntary prepayment services "so high that they will be out of the reach of most people." Finally, he preaches the doctrine that compulsory health insurance is inevitable.

These claims have been refuted so frequently that they need no further comment here. It is not too difficult to visualize the source of these beliefs, if they are such, particularly since the publication of Congressman Harness' report on propaganda activities and expenditures by six Government agencies in behalf of a federal system of state medicine.

The interesting side of it is that a writer of world renown, a former university faculty member, can and will swallow whole a well-prepared campaign of propaganda without inquiring too closely into its source and its truth. How can such an author give credit to the doctors on one side for a superior thinking capacity and then cut off their thinking processes at an imaginary line between medical progress and social stagnation? How can such a one justify a reportorial production in which he has interlarded so much that is subjective? The publishers of the magazine may well be excused for printing a story

by an author whose name means circulation; that is a commercial privilege in our American system of economy. But how can the author himself condone a fifty-fifty piece of writing which starts out as a fish and ends up fowl?

May we suggest to Mr. DeVoto that the type of governmental control of medical practice which he rates as inevitable would be the mere starting point for a control which would engulf him and other writers as well? May we suggest that he not lose sight of the imperative need of maintaining the quality of medical care and not jettisoning it in favor of what *might* be a larger quantity? May we suggest further that he might profit by at least looking over some of the medical propaganda which he protests, just as carefully as he has looked into the social planners' propaganda which he has swallowed whole?

Several years ago the American public was momentarily titillated by a drama critic's report on a new play in which the heroine, more noted for her beauty than her acting ability, was stated to have "run the gamut of emotions from A to B." Possibly Mr. DeVoto could gain ground by getting a little farther into the alphabet of medical economics.



CLINICAL CONFERENCE

FROM THE MEDICAL STAFF CONFERENCE OF THE UNIVERSITY OF CALIFORNIA HOSPITAL,
SAN FRANCISCO, MARCH 19, 1947

CASE PRESENTATION BY DR. GOFMAN:* The patient is a 31 year old married housewife who entered the hospital on February 21 with fever, abdominal pain and tenderness of 30 hours' duration. The present illness began two years ago when she first noted transient ankle edema at the end of the day for periods of two or three days at a time. During the year before her entry she noticed a generalized loss of energy. In October of last year she had all of her upper teeth extracted. Following this there was drainage of yellow pus from her gums for three weeks, associated with swelling and tenderness of the gums. In December the gums were scraped by her dentist with apparent healing. On January first, she awoke to find herself swollen throughout. Her eyes were swollen shut; there was edema of the hands and of the legs, and swelling of the abdomen. She was treated throughout the month of January by her local physician with thyroid extract three grains a day, vitamins, and mercurial diuretics, without improvement. On February 20, after having had the edema for about a month and a half, she noted pain in the lower left quadrant followed by the development of a red rash over the entire umbilical region of the abdomen, associated with a couple of shaking chills and fever. She was then advised to come into U. C. Hospital and did so 30 hours after the development of rash, abdominal pain and fever.

Her past history includes scarlet fever at the age of 12 without known complications. At age 20 she had her only pregnancy, during which time no hypertension, albuminuria, or edema was noted.

On entry the temperature was 37.0° C. There were generalized edema and erythematous lesions over the entire lower half of the abdomen and the upper part of the left thigh. The rash was painful and quite tender to palpation. The diagnosis of erysipelas was made. Penicillin was given, 50,000 units every three hours. Within two days the temperature had come down to normal and the pain and redness had disappeared.

The major laboratory findings on entry were as follows: The NPN was 36. (normal). The blood CO₂ and chloride were definitely low. The serum proteins were down to 4.05 grams per 100 cc. with a reversal of the albumin-globulin ratio. The serum sodium was low. The serum calcium was 7.8 grams per 100 cc.; the phosphorous 5.4 grams per 100 cc. Subsequently the CO₂ and chloride showed no significant rise. The proteins remained in the neighborhood of 4 to 5, with a low albumin. The serum potassium was 2 millequivalents per liter. Potassium chloride was given, 6 grams a day, without any essential

change in the serum potassium or sodium. After several days of therapy the cholesterol was 444 mgm. per 100 cc. and the serum was obviously milky. A 24 hour urine specimen revealed a protein output of 30 grams. The 24 hour sodium chloride output was 1.5 grams. Routine urinalyses showed occasional granular casts, a few red cells and white cells. Maximum concentration was 1.026. The hemoglobin was high, (15 to 16 grams) before therapy. On the tenth of March, a course of concentrated salt-poor albumin was started, 50 grams a day being given intravenously. After two days of this therapy the edema decreased visibly, the hemoglobin was back up to 14.5 grams. The patient had anorexia throughout the hospital stay, plus some nausea and vomiting. The approximate dietary protein intake was 20 grams a day. The weight she had maintained for the last couple of years had been around 53 kilograms. When she came in it was 62 kg. With some spontaneous diuresis it dropped to 59.5 kg. At the end of the administration of 300 grams of salt-poor albumin, it was 54.5 kg.

DR. JAMES HOPPER, JR.:† I would like to call attention to a few significant symptoms. . . . (Patient was brought in.) Can you tell us how long you have been bedridden?

PATIENT: Since the tenth of January.

DR. HOPPER: Why can't you get up?

PATIENT: Because I get dizzy, and weak and my ears start ringing.

DR. HOPPER: I think these symptoms are very significant, and later we shall try to demonstrate to you that they are dependent upon changes in blood and plasma volume. Another symptom worthy of note is the anorexia. This greatly complicates her treatment which, in part, is one of maintaining protein nutrition.

DR. LESLIE L. BENNETT:‡ This patient presents a typical picture of chronic glomerulonephritis in the nephrotic stage. The diagnosis of glomerulonephritis as opposed to nephrosis is established by the presence of red blood cells and red cell casts in the urine. It is important for the students to remember that chronic glomerulonephritis may be present itself in a variety of clinical forms. The clinical picture may be dominated by hypertension with its attendant cardiac enlargement, hypertensive encephalopathy, or congestive heart failure. Uremia and uremic symptoms may be predominant. Or we may see the chief physiological disturbance to be the albuminuria with its attendant reduction of the plasma protein and

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consequent edema. This patient is a pretty typical example of this last type. She has no hypertension and little evidence of renal failure, but she has marked albuminuria, plasma protein depletion, and edema.

There has been some question in this patient as to whether the low plasma sodium reflects inability of the decreased kidney to conserve sodium, resulting in the depletion of plasma chlorides and bicarbonate as well. I do not believe that this is the case. We know that at the pH of normal blood the plasma proteins are present largely as anions and require the presence of about 18 milliequivalents per liter of sodium ion to maintain electroneutrality. Therefore a reduction of the plasma proteins must as necessity be accompanied by a reduction of plasma fixed base. In the present case the reduction of plasma sodium is almost exactly that predictable from the reduction of the plasma protein. Another way of looking at the same phenomenon is to remember that as the plasma proteins are reduced the electrolytic composition of the plasma must approach that of the interstitial fluid, which normally contains less sodium than does the plasma.

From a therapeutic point of view the immediate goal of treatment is two fold: first, the relief of the edema, which is the origin of the subjective symptoms, and second, the restoration of the depleted plasma protein. Because of her anorexia she has presented a great practical problem in this regard. As was shown, her average dietary intake of protein has been around 20 gm. per day while her urinary output of albumin has been around 30 gm. per day. Thus, she had a negative nitrogen balance during most of her hospital stay and it is not surprising that she showed little improvement. The use of salt free concentrated human albumin is perfectly rational, and it has been an effective diuretic agent. However,

the effect of the albumin has not been permanent, and if she does not receive it the edema again increases in severity within 48 hours. I would be inclined to think that the ultimate prognosis for this patient is poor because of the degree of albuminuria and its duration, the evidence suggestive of renal failure, and her failure to respond to anything except concentrated albumin which itself has only palliative results.

DR. HOPPER: I am going to ask Dr. Mudrick to review the blood volume studies for you, since he did the work.

DR. CHARLES J. MUDRICK:* Summarized in the chart are figures relating to blood and plasma volume fluctuations in response to albumin therapy. We have correlated; (1) changes in serum protein concentration and (2) total or absolute amount of circulating serum proteins, (3) packed cell volume, and (4) albumin intake and urinary wastage of protein with the blood volume fluctuations.

When this patient first came in, her total serum proteins were 4.1 grams per 100 cc. Shortly thereafter her PCV was 44. The next few days it was noted the hemoglobin was rising up to about 116 per cent. At this time, February 27, we found that her total blood volume was 3,300 cc., and the red cell volume was 1,550 cc. Serum proteins determined by the falling drop method were 4.4 grams per 100 cc. Knowing the total blood volume, we were able to calculate the total circulating protein, which was 77 grams. In the next few days the packed cell volume and the hemoglobin continued to increase. The final blood volume before giving albumin, was decreased to 2,960 cc. This is definitely below normal for a female with her ideal weight of 55 kilos, and explains partly why, on arising, she felt dizzy and weak. It

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Table Showing Effect of Salt-free Albumin on Blood Volume of Patient in Nephrotic Stage of Glomerulonephritis

Date	Salt-Free Albumin Given	Total Blood Volume in cc.	Plasma Volume in cc.	RBC Volume in cc.	Packed Cell Volume	Total Serum Proteins in Grams per 100 cc. of Blood	Total Circulating Proteins in Grams	Total Urinary Proteins in Grams per 24 Hours
2-24-47	.....	.....	.....	.....	44.0	.....	.....	35.9
2-27-47	.....	3300	60 cc./kilo	1750	1550	46.9	4.40	77.0
2-28-47	.....	.....	.....	.....	50.0	4.79	.....	23.8
3-10-47	50 gm.	2960	54 cc./kilo	1413	1545	52.1	3.28	46.3
3-11-47	50 gm.	.....	.....	.....	.....	.....	.....	28.0
3-12-47	50 gm.	"3270"	59.3 cc./kilo	"1720"	"1550"	47.2	3.66	"63.0"
3-13-47	50 gm.	.....	.....	.....	.....	.....	.....	20.0
	Before Albumin	"3300"	59.3 cc./kilo	"1750"	"1550"	46.8	3.66	"64.0"
	After Albumin	"4220"	76.5 cc./kilo	"2660"	"1550"	36.7	4.29	"114.0"
3-14-47	50 gm.	.....	.....	.....	.....	.....	.....	.....
	Before Albumin	"3210"	58.4 cc./kilo	"1660"	"1550"	48.2	4.08	"68.0"
	After Albumin	"4220"	76.5 cc./kilo	"2660"	"1550"	36.7	3.77	100.0
3-21-47	50 gm.	.....	.....	.....	.....	.....	.....	.....
	After Albumin	3520	64 cc./kilo	2140	1380	39.2	.....	.....
3-31-47	50 gm.	.....	.....	.....	.....	.....	.....	20.0
	Before Albumin	2550	46.4 cc./kilo	1430	1130	44.3	3.44	46.5
	After Albumin	"3300"	.....	"2170"	"1130"	34.2	.....	.....

NOTE: The figures in quotation marks above are calculations based on an assumption that the RBC volume has remained constant for the period 3-12-47—3-14-47 inclusive. This is a fair assumption since the RBC volume for ten days preceding had remained constant as noted by the figures for these days. Actual blood volume determinations could not be carried out as frequently as desired due to difficulties with vein puncture.

is known in normal individuals who stand after lying down for several hours that the packed cell volume increases and there is a lowered blood volume due to loss of fluid of the blood. We discovered that after giving the albumin for two days the blood volume returned approximately to the previous level. However, at this time the patient was much better subjectively. Then, on the 13th and 14th, we took the packed cell volumes before and after the albumin was given. Using the packed cell volumes, we were able to calculate the blood volume, assuming that the red cell volume was approximately the same during this period of time. On two separate occasions they were actually the same. So, using this figure, we were able to determine the total blood volume. Immediately after the albumin was given the blood volume had increased markedly and was within normal limits. Eighteen to 24 hours later, the blood volume had diminished a thousand cubic centimeters, or 24 per cent of the total. This, apparently, is all in the form of the plasma loss. The determination of total circulating proteins shows that the total circulating proteins increased from 46 grams to 64 grams after 100 grams of albumin were given in two days. At the same time the urinary protein loss, taken for several days previous to giving the albumin and several days after, remained constant. The increase of 18 grams illustrates that about 80 per cent of the albumin had been lost as far as the blood stream is concerned, and that this was not lost in the urine, but was actually metabolized by the patient.

DR. HOPPER: I would like to stress again the relationship of blood volume to the symptoms of dizziness. It was noted that there was a marked drop in blood pressure when the patient raised from a recumbent to the sitting or standing position, accompanied by a feeling of distress. When she stands up, the usual increase in venous pressure found in the legs is exaggerated because the pressure of serum proteins in the circulation is low, and therefore she has a greater tendency to lose fluid with the tissues. Her blood volume drops down to a critical level, and it is no longer possible to maintain blood pressure despite the contraction of the blood vessels.

I am not so sure about this patient's renal function. The low blood volume, I think, makes it pretty difficult to tell, because it is obvious that with the low blood volume she would have a tendency to have glomerular filtration. So I think that she may have a pre-renal failure but we cannot say this with certainty. Strangely, the nephrotic patient goes to a complete cure better than any of the other chronic glomerulonephritis patient.

Dr. Mudrick has shown you that the albumin given is not reflected by a rise of serum protein. One serum protein value immediately after giving a hundred grams of protein is lower than one at the onset. This simply means that part of the protein is being used in expanding the blood volume. But it looks also as though the protein were going somewhere else, and it is a well known fact that some of these patients go into a positive nitrogen balance for a long time. Some of the protein can undoubtedly go into the

tissue stores. One way of looking at it, and much of the experimental work makes this look somewhat correct, is that you have in the body tissues a large reservoir with the serum albumin reflecting the body proteins. Therefore when you put albumin into the circulation it is necessary to raise this whole large reservoir.

Dr. Bennett mentioned to you the patient's failure to eat. When she gets the albumin, she begins to eat much better. But I doubt if she ever gets up to her true caloric needs. Each one gram of albumin is equivalent to four calories, and that albumin, if she isn't getting sufficient calories, is eligible for caloric needs. It is food, so it can be burned to furnish these calories. If one thinks of expense in terms of what one is paying for calories, it really gets very high. Fifty grams a day furnished 200 calories at a cost of \$125. I think that shows you why albumin in a certain sense is financially impractical. However, should it save the patient's life, it is highly logical.

I might go back to say a few words about the measurement of blood volume. We are fortunate here in using the carbon monoxide method, and it has an advantage over the dye (Evans Blue) method, particularly in a case like this. In the dye method you introduce the dye into the blood and measure the solution, and it has a fault in that if the serum is cloudy it makes the reading difficult. Secondly, a patient like this almost invariably clears the dye into the urine because it is attached to the protein. Therefore, you get an apparently larger blood volume than the actual blood volume.

DR. STACY R. METTIER:[‡] Does the urine output increase after albumin?

DR. HOPPER: It goes up distinctly after giving the albumin.

DR. WILLIAM J. KERR:[§] It rises sharply immediately after the albumin but falls off by the next day, correlating with changes in blood volume.

DR. HOPPER: Thorn has maintained patients like this for as long as 30 days. That costs about \$3,700. No direct benefit was observed as far as the disease process in the kidney is concerned. However, his patients did get along quite well, during the treatment period had good diuresis, and after the period of therapy were able to maintain a lower weight than previously. The patients had gone into a positive nitrogen balance, which is good. In other words, they stored some nitrogen which was going to carry them along in the future.

DR. T. L. ALTHAUSEN:[†] Dr. Hopper, one time Epstein gave patients with nephritis large doses of thyroid substance for which he claimed beneficial results. It was mentioned that this patient had milky serum with cholesterol count of 444. It seems to me that is a little low to impart a milky quality to the serum.

DR. HOPPER: The cholesterol is elevated in this patient, but in addition neutral fats, fatty acids and

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phospholipids may be increased and impart a milky appearance to the serum. These patients nearly always have a low basal rate, usually around 30 per cent minus, but they tend to respond as a rule very, very poorly to the administration of thyroid. In some of Epstein's cases, they were given as high as a whole gram per day of thyroid without response. The basal rate didn't go up. One possible explanation of that is that they have such a terrific proteinuria that the particular metabolically active protein is just carried right out. It is obvious that with only 77 grams total circulating protein in the blood, and losing 25 grams a day, every three days all that protein is going to be cleared out and must be replaced by new protein. I do think thyroid is always worth trying in any case. On the other hand, there is another consideration, namely, if you actually increase the metabolic rate of these patients you might tax them in other ways, especially from the point of view of the kidney.

QUESTION: Doctor Hopper, what would be your reaction to the use of gelatine in this patient?

DR. HOPPER: I think that is a pertinent question. Gelatine is undoubtedly much cheaper for one thing. It suffers from the same difficulties that albumin suffers, being cleared out very rapidly. The changes in plasma volume are very transient, lasting only a matter of hours. We have been able to obtain gelatine free of sodium which is of prime importance. Of

course gelatine is less physiological than human albumin.

DR. KERR: What do testosterone and some of the other sex hormones do in a patient of this type? Do they tend to cause retention of nitrogen in patients such as this?

DR. HOPPER: Well, testosterone deserves a trial. We have given it to one patient without a spectacular effect. It should be done, and the effect on the total circulating protein should be studied.

I do think, however, along with the general treatment of the patient one should always include a consideration of the kidney lesion, because you may prolong life in many instances if you can keep the patient from going into uremia.

QUESTION: Why couldn't you give whole blood transfusions to build serum proteins?

DR. HOPPER: In this patient you would run into trouble because the patient already has a hemoglobin between 117 per cent and 105 per cent. You would be likely to build up the cells and you might produce vascular accidents, perhaps thrombosis, due to over-thick blood.

QUESTION: How does the use of albumin compare with the use of plasma?

DR. HOPPER: They are both costly. I guess the albumin is a little bit more expensive. One trouble is the salt. One would be in difficulty very quickly unless one obtained salt free plasma.



CALIFORNIA MEDICAL ASSOCIATION

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NOTICES AND REPORTS

Council Meeting Minutes

Tentative Draft: Minutes of the 346th Meeting of the Council of the California Medical Association, Los Angeles, September 20-21, 1947.

The meeting was called to order by Chairman Bruck in Conference Room No. 5 of the Biltmore Hotel at 10:10 a.m., Saturday, September 20, 1947.

1. Roll Call:

Present were President Cline, President-Elect Askey, Speaker Alesen, Vice-Speaker Charnock, Councilors Bruck, Shipman, Ball, Crane, Kneeshaw, Lum, MacDonald, Green, Cherry, MacLean, Hoffman and Thompson, Secretary Garland and Editor Wilbur. A quorum was declared present and acting.

Present by invitation were Legal Counsel Hassard, Executive Secretary Hunton, Assistant Executive Secretary Wheeler, Legislative Chairman Dr. D. H. Murray, Mr. Rollen Waterson, Executive Secretary of the Alameda County Medical Association, Public Relations Counsel Clem Whitaker, and Mr. Ed Clancy, associated with Mr. Whitaker.

2. Approval of Minutes:

(a) Minutes of the 345th Council meeting, held June 21-22, 1947, were approved.

(b) Minutes of the 204th Executive Committee meeting, held August 6, 1947, were approved.

3. Membership:

(a) A report of membership as of September 19, 1947, showing 8,739 active members, was received.

(b) Upon motion duly made and seconded, 126 members whose 1947 dues had been received since June 22, 1947, were reinstated to active membership.

(c) Upon motion duly made and seconded, Dr. Jack K. Ransom of Stanislaus County was elected to retired membership.

(d) Upon motion duly made and seconded, Drs. L. P. Fleming of Fresno County and R. G. Frey of Tehama County were elected to Life Membership. Two other applicants for Life Membership, Drs. W. J. Avery and L. R. Willson of Fresno County, were elected as life members provided they comply with the dues requirements for such membership.

(e) Upon the request of the component county

medical societies, it was regularly moved and seconded and voted to elect Drs. Lewis G. Jacobs, James W. Moreland and Robert J. Parsons of Alameda County and Dr. J. B. Askew of San Diego County to Associate Membership.

4. Financial:

(a) A report showing cash balances as of September 10, 1947, was received and ordered filed.

(b) A report showing the Association Balance Sheet as of August 31, 1947, was received and ordered filed. A report of income and expenditures for August and for the first two months of the fiscal year was previously mailed to the Council.

5. Committee Appointments:

(a) The Chairman announced the membership of a Committee on Awards, which will be responsible for determining the award winners for scientific exhibits and also for papers of outstanding merit submitted by internes, residents and junior physicians at the Annual Session. This committee consists of Drs. Edward B. Dewey of Pasadena, Emile Holman of San Francisco, E. Richmond Ware of Los Angeles and Wm. J. Kerr of San Francisco. This committee has been authorized to appoint a secret committee of judges if it wishes.

(b) The Chairman announced the membership of a Committee on Councilor Districts, as authorized by the 1947 House of Delegates. This committee consists of Dr. G. Dan Delprat of San Francisco, chairman; William N. Makaroff of Guerneville, Orrin C. Cook of Sacramento, T. C. Lawson of Oakland, Ruth A. Frary of Watsonville, Alfred B. Wilcox of Santa Barbara, F. R. Guido of Visalia, George Caldwell of Hollywood and A. E. Moore of San Diego.

The Chairman read a letter which had been sent by the chairman of this committee to the members, outlining the objectives of the committee, detailing the present status of Councilor Districts and requesting suggestions for committee consideration.

(c) The Chairman announced the membership of a Committee on Constitution and By-Laws as authorized by the 1947 House of Delegates. This committee consists of one member each from the nine Councilor Districts and one member each from the

seven largest component county medical societies. The Council selected from the nine Councilor Districts Drs. Dudley Saeltzer of Sacramento, George I. Dawson of Napa, J. Marion Read of San Francisco, Leslie B. Magoon of San Jose, J. E. Young of Fresno, A. A. Morrison of Ventura, Paul A. Quaintance of Los Angeles, Sam J. McClendon of San Diego and Lester B. Lawrence of Oakland. Their respective county societies selected Drs. A. E. Varden of San Bernardino, John C. Wilson of San Jose, Bryant R. Simpson of San Diego, Orrin C. Cook of Sacramento, William G. Donald of Oakland, G. Dan Delprat of San Francisco and Edmund T. Remmen of Los Angeles.

The Chairman asked suggestions for a temporary chairman for this committee and on nominations duly received, it was regularly moved, seconded and voted that Sam J. McClendon of San Diego be elected temporary chairman.

6. American Medical Association:

Dr. Dwight H. Murray reported on several matters which had recently come before the Board of Trustees of the American Medical Association, of which he is a member.

One item concerned the need of providing some health inspection, particularly for tuberculosis, of immigrants coming to the U. S. from other countries where health standards and tuberculosis control are not on the American level. Dr. Murray suggested that the Association take some action to urge that proper examinations be required for immigrants. On motion duly made and seconded, the Council unanimously voted that an appropriate resolution be prepared for introduction into the A.M.A. House of Delegates by the California delegation.

Dr. Murray also discussed the advisability of providing for the affiliation of medical students and hospital junior staff members with organized medical groups. It was pointed out that this subject had come before the C.M.A. 1947 House of Delegates. On motion duly made and seconded, it was voted that a committee of six members should be appointed to consider this question and report to the next C.M.A. Annual Session on recommended means to bring about the affiliation of medical students and junior hospital staff physicians with the Association, the President of the Association to serve as chairman of the committee and the other five members to be selected because of their knowledge of the operation of the five medical schools of the State.

7. Prepayment Medical Care Plans:

Dr. Green discussed a recent report offered by Dr. Sidney Garfield and associates to establish a physician in Petaluma if the C.I.O. in that area would agree to secure medical care contracts from 200 of its members and their families. He stated this represented a spreading out of the "Permanente Foundation" and stated his belief that the word "Foundation" in the title of this organization might be misleading to the public. Dr. Cherry commented on the operations of the "Permanente plan" in the Fontana area and Mr. Whitaker stated that the Health

Service System of San Francisco, from which more than 800 of the present 985 panel physicians are about to resign, has reported been dealing with "Permanente" to provide service in case the private physicians' resignations become effective.

After considerable discussion, it was regularly moved, seconded and voted that the following resolution be adopted:

WHEREAS, The Council of the California Medical Association on August 12, 1945, adopted basic "Principles on Health Insurance" which were published in *California and Western Medicine* at page 61* of the August, 1945, issue, and

* It is in the public interest that the California Medical Association, representing the doctors of medicine practicing their profession in the State of California, publicly make known the principles which should form the basis of any health insurance program, and from which there should be no material deviation if the public welfare is to be properly and adequately protected. The public health and good medical practice are inextricably interwoven and interdependent.

This statement is made with the understanding that the public is entitled to the best possible quality of medical service and access thereto. The medical profession must be in a position to render such service if the best interests of the public are to be served.

The manifold and constant advances in the science and practice of medicine are put to public benefit only when they can be utilized by an alert and progressive medical profession. The public is entitled to profit by all scientific advances and the public welfare demands that the medical profession have complete scientific freedom in their application.

PRINCIPLES

Any sound health insurance program should fulfill each of the following basic points:

1. It is of primary importance that the people should be enabled to provide for the costs of illness on a regular budget basis during periods of good health and stable earning power, so that they may have a medical-economic security. It is vital, however, that the distribution of costs should be undertaken in a manner which will still guarantee the finest possible medical care and which will prevent any deterioration in the quality of medical service.

2. To serve the ultimate public interest any health insurance plan must:

- a. Be voluntary and not compulsory in nature.
- b. Retain individual initiative in medical practice, so that the incentive for further advance in scientific medicine may continue.
- c. Fully protect the freedom of choice, both of the patient in choosing a physician and of the physician in choosing his community, type of practice and professional procedures.
- d. Offer medical care in cooperation with allied services against serious illness or injury.
- e. Offer participation at a cost within the means of all employed persons and income-receiving families, and
- f. Provide a fair reward to those rendering the service which will give continued stimulus to scientific medical development and sound medical practice.

3. The function of state government should be to encourage voluntary health insurance programs but not regiment the patient and the medical profession or operate compulsory health insurance plans established by political means; to further this function, the state should cooperate with medical and allied professional groups to provide the availability of medical and associated care through acceptable prepayment plans in areas where a shortage of medical and hospital facilities exists.

4. It is in the public interest that the human factor in medical care be thoroughly recognized; the sanctity of the patient-physician relationship must be maintained and the method of providing medical care must not become enmeshed in bureaucratic red tape and a system of tickets, coupons, questionnaires and other political controls and delays.

5. It is essential for the public welfare that there exist in each state a complete inventory of all medical resources and facilities. It is in the public interest that a coherent and comprehensive educational program be undertaken, preferably by responsible authorities and the medical profession in a coordinated effort, to advise all the people of the state on the facilities and services available to them in the event of need and to encourage sound public health measures for the prevention of both accidental and non-accidental illnesses and injuries.

6. There should be a coordinated program on the part of all groups concerned with this problem, directed to the extension of voluntary health insurance plans, so that our people may systematically provide for their health care on a budget basis.

WHEREAS, Said principles on health insurance specify the conditions which any health insurance plan, public or private, should fully meet, and

WHEREAS, It is the sense of the Council of the California Medical Association that members of the Association ought not to participate in health insurance plans unless they fully comply with these principles on health insurance, and

WHEREAS, Section 2(d) of Chapter 2 of the By-Laws of the California Medical Association provide that any active member of a component county society shall be subject to disciplinary proceedings in the event of violation of any of the By-Laws of the California Medical Association or any of the principles of medical ethics promulgated from time to time by the California Medical Association, and

WHEREAS, It is in the best interests of the California Medical Association, its component county societies and its members that the principles on health insurance heretofore adopted be incorporated in the By-Laws of the California Medical Association as one of the principles of medical ethics of the Association, now therefore be it

Resolved, That the Council shall recommend to the House of Delegates at the next regular or special session of the House of Delegates that the principles on health insurance heretofore adopted by the Council be approved and ratified by the House of Delegates, and that all component county societies and members be notified of such action.

8. *California Tuberculosis and Health Association:*

Dr. Askey, chairman of a C.M.A. committee to meet with a committee from the California Tuberculosis and Health Association, reported on a meeting held September 14, 1947, by the joint committee, at which progress was made in removing misunderstandings between the two organizations. On motion by Shipman, seconded by Cherry, it was voted that this committee be continued and that cooperation with the California Tuberculosis and Health Association be sought.

9. *1948 Annual Session:*

Dr. Garland reported on a meeting of the Committee on Scientific Work, at which general plans for the 1948 Annual Session were laid. The committee contemplates a meeting in San Francisco, headquarters to be in the Hotel St. Francis, with meetings in that hotel, the Sir Francis Drake Hotel and the Geary and Curran theaters.

On motion by Askey, seconded by Green, it was voted that the Committee on Scientific Work be empowered to arrange for five guest speakers at the Annual Session, one guest to be invited by the President, one by the Section on General Medicine, one by the Section on General Surgery and two each year by the other specialty sections in alphabetical rotation.

On motion by Cline, seconded by Green, it was unanimously voted to extend to Dr. George Lull, Secretary and General Manager of the American

Medical Association, an invitation to appear as a guest speaker on the 1948 Annual Session program.

10. *Recess:*

At this point, 4:00 p.m., it was voted to recess until 9:30 a.m., Sunday, September 21, 1947.

11. *Reconvention:*

The meeting reconvened at 9:40 a.m., Sunday, September 21, 1947. On roll call, the Officers and Councilors reported present on September 20 were recorded present and a quorum was declared present and acting. Also present by invitation were Dr. Wilton L. Halverson, State Director of Public Health, Dr. Lowell S. Goin and Dr. Donald Cass, representing the Board of Trustees of California Physicians' Service, and Mr. E. R. Paolini, auditor of C.P.S.

12. *Committee on Postgraduate Activities:*

Dr. Garland reported on a meeting of the Committee on Postgraduate Activities and outlined several proposals the committee wished the Council to consider for the extension of postgraduate activities throughout the rural areas of the State. After discussion of the various proposals, it was moved by MacDonald, seconded by Hoffman and voted that the Committee on Postgraduate Activities be empowered to secure the services of a physician on a part-time or full-time basis at a salary of \$6,000 to \$12,000 annually, who would coordinate existing postgraduate work, maintain up-to-date information in a special page of the Journal and arrange for suitable postgraduate courses in areas outside the three metropolitan centers of the State. This physician would work under the direction of the committee, through the Association office, and would be selected and his compensation determined through the Executive Committee.

13. *Committee on Medical Economics:*

Dr. MacLean reported on progress by the Committee on Medical Economics in studying the problem of relationships between individual physicians and their patients. The committee has proposed that a thorough statistical study be made of cases of ill feeling which have arisen in various counties and have called for handling by the Bureau of Medical Economics. This study would cover cases in Alameda, San Francisco and Santa Clara counties and would be used as the basis for determining a program to improve the individual relationships between doctors and their patients. This survey would be started under the initial appropriation of \$2,500 made by the Council for the work of the committee but Dr. MacLean stated that the completion of the work might require an additional \$2,500 because of the personnel needed. On motion by Cline, seconded by Hoffman, it was voted that an additional \$2,500 be authorized for this survey, if needed.

14. *Advisory Planning Committee:*

Mr. Hunton, chairman, reported on a meeting of the Advisory Planning Committee with Dr. MacLean,

chairman of the Committee on Medical Economics, at which the Advisory Planning Committee had reviewed the proposed survey plan of Dr. MacLean's committee and had voted unanimously to recommend to the Council that it be adopted. The Advisory Planning Committee had also voted to recommend that a section on medical economics be established, under the direction of the Committee on Medical Economics, to hold one or more meetings at each annual session for the discussion of business, economics and public relations problems involved in the practice of medicine. Inasmuch as the Committee on Scientific Work was already planning a medical economics meeting for the Annual Session, no action was taken on this proposal.

15. C.P.S. Fee Schedule Committee:

Dr. Cline reported that Dr. W. L. Bender, chairman of a fee schedule committee established by the Council, was disturbed because the committee had not been given a report to date on any action taken on the recommendations of the committee, which were forwarded to the C.M.A. and through the Council to the Trustees of C.P.S. Mr. Hassard reported that action had been taken on some of the committee's recommendations and was under consideration on others. On motion by Cline, seconded by MacDonald, it was voted that the Council request the Board of Trustees of C.P.S. to furnish Dr. Bender and his committee with a report on the recommendations made by his committee and any action taken or contemplated on them.

16. Palo Alto Clinic:

The chairman read several letters which had passed between physicians in Santa Clara County and the Association office and legal counsel in regard to the effectiveness of working agreements made between officers of Stanford University and the Santa Clara County Medical Society and the C.M.A. for student health service at Stanford. Some physicians in Palo Alto expressed the belief that the spirit of these agreements was not being lived up to and that there should be a closer contact between the C.M.A. and Stanford University in this regard. On motion by MacDonald, seconded by Alesen, it was voted that the Council Chairman should request Dr. Donald Tresidder, President of Stanford University, to supply the Council with copies of all material bearing on the student health service, including publicity releases, which is to be given to students enrolling in the University.

17. California Physicians' Service:

Dr. Lowell S. Goin, President of the Trustees of California Physicians' Service, reported that the beneficiary membership as of August 31, 1947, was more than 508,000. The emphasis in enrollments is now on increasing the percentage enrollment in existing groups rather than gaining new groups. He also reported on a Santa Clara County meeting of August 21, at which C.P.S. representatives joined with C.M.A. officers and C.M.A. public relations

counsel in explaining C.P.S. and C.M.A. policies in regard to prepayment plans and public relations. Dr. Goin also reported that Dr. Albert M. Meads of Oakland had been appointed a Trustee of C.P.S. to succeed Dr. Donald D. Lum, resigned. He also stated that C.P.S. had recovered between \$80,000 and \$90,000 from the Veterans' Administration for administrative expenses beyond the 7 per cent originally calculated in the Veterans' Administration contract.

Dr. Goin stated that the Board of Trustees of C.P.S. had voted to request the Council to continue a C.P.S. fee schedule committee.

Dr. Donald Cass reported on the formation of a permanent joint operation committee by C.P.S. and Hospital Service of Southern California. This committee has held one meeting and Dr. Cass stated the outlook for smooth joint operations by and between the two organizations was very good.

Mr. Paolini gave a report on the financial status of C.P.S. and estimated that by December a decided improvement in operating results will become apparent.

18. New Mexico Physicians' Service:

Mr. Hunton reported on his visit to New Mexico Physicians' Service in conformity with instructions given at the 345th Council meeting. He conferred with Dr. John Conway, President of New Mexico Physicians' Service, Mr. Louis J. LaGrave, Executive Director of New Mexico Physicians' Service, and Mr. Charles Johnson, President of the Board of Trustees of Hospital Service, Inc., the Blue Cross program in New Mexico.

The difficulties between New Mexico Physicians' Service and Hospital Service are traceable to personality clashes, resulting in refusals to hold joint meetings, whispering campaigns against individuals and other evidences of non-cooperation. Hospital Service, Inc., had attained a membership of about 3,000 in its own operations prior to formation of New Mexico Physicians' Service. In its joint operations with New Mexico Physicians' Service since April 1, 1946, this membership has risen to more than 10,000 and the enrollment of N.M.P.S. has reached about 8,000.

New Mexico Physicians' Service operated at a loss of \$7,342 for the final nine months of 1946, its first fiscal period, and for the first seven months of 1947 has shown an operating profit of \$4,442, making a deficit of \$2,900 as of July 31, 1947. Of the first seven months of 1947, five have shown an operating profit of from \$403 to \$2,960 and two have shown losses of \$735 and \$751. As of July 31, 1947, N.M.P.S. showed current assets of \$18,785 and current liabilities of \$2,587. On the same date the balance sheet shows cash advances of \$11,250 from the California Medical Association and \$8,900 from physicians in New Mexico. All physicians' claims for services were paid up to date and a liquidation on that date would have permitted the payment of 80 per cent of the funds advanced by the C.M.A. and by New Mexico physicians.

New Mexico Physicians' Service has been attempting to attain a straight joint operating agreement with Hospital Service, Inc., under the direction of a single executive but has not received much encouragement from Hospital Service toward that end. At present it is reported that Hospital Service, Inc., is discussing with Occidental Life Insurance Company the possibility of that company's writing surgical or medical indemnification insurance in conjunction with Hospital Service's hospitalization coverage; at the same time, N.M.P.S. is considering the activation of a non-profit corporation which it has already formed for the purpose of writing hospitalization coverage if that course is deemed advisable. N.M.P.S. feels that its own hospitalization program would receive the support of all thirty hospitals in the State with the single exception of the Presbyterian Hospital in Albuquerque, which until recent months has supplied seven of its officers or employees as members of a nine-man directorate of Hospital Service, Inc. More recently, N.M.P.S. was requested to name three physicians as members of this board; the physicians have been named but have found that the operations of Hospital Service, Inc., are controlled by a small executive committee which does not include physicians.

Mr. Hunton reported a most cordial feeling toward the C.M.A. by the physicians of New Mexico and a desire on their part to discontinue the monthly loan which the C.M.A. has granted N.M.P.S. No date for discontinuance of the loan has yet been determined but will be at the earliest practicable date.

19. Industrial Fee Schedule:

Dr. Donald Cass, Chairman of the Committee on Industrial Practice, reported that the committee has solicited suggestions for revision of the present schedule of fees for industrial accident cases. These suggestions will be collated by the committee and any suggestions by the committee will be brought before the Council.

Dr. Cass also reported on a series of industrial health shows which have been staged in various cities under the supervision of the Council on Industrial Health of the A.M.A. He gave the Council the suggestion from the A.M.A. that a full or part-time physician be appointed to travel throughout the State to stage industrial health exhibits and to appear before service clubs and other civic organizations to promote better industrial health conditions.

20. California Hospital Survey:

Dr. Shipman, Council Vice-Chairman, assumed the chair and read a letter from Dr. Lowell S. Goin under date of July 23, 1947, and a letter from Dr. Wilbur Bailey under date of September 11, 1947, both criticizing statements included in a report entitled "Survey of Hospital Facilities in California—Preliminary Report" recently issued by the California State Department of Public Health. The statements criticized concerned the advocacy of hospitals as the desirable location for all diagnostic and therapeutic procedures to take place. On motion by

Kneeshaw, seconded by Shipman, it was unanimously voted that the Council go on record as favoring the sentiments expressed in these two letters and forward copies of the Council resolution to the members of the Governor's Advisory Council on Hospital Facilities, which was responsible for the report.

Dr. Wilton L. Halverson, State Director of Public Health, stated that there were doubtless some errors contained in this preliminary report which would not be contained in the final report. He also stated that when and if hospitals are located in rural areas under a coordinated hospital construction program it will be the policy of the Department of Health to encourage physicians to locate their offices within or adjoining the hospitals.

21. State Department of Public Health:

Dr. Wilton L. Halverson, State Director of Public Health, reported on the establishment of a field training program for workers in the field of poliomyelitis and on other projects of his department. These were reported in the minutes of the 204th meeting of the Executive Committee, approved by this meeting.

22. Blood Banks:

The chairman digested actions taken to date in working toward a coordinated program of blood banks in California and reported on the agreement of the C.M.A., the State Department of Public Health and others as early as November, 1946, to work for the establishment of community blood banks in selected areas throughout the State. He also commented on some activities of the American Red Cross in its newly-developed national plan of blood banks. Dr. Thompson and Dr. Halverson also referred to Red Cross activities in this field and there was general discussion.

On motion by MacDonald, seconded by Askey, the following resolution was unanimously adopted:

WHEREAS, The dangers, technicalities, and complexities involved in the procurement, processing and transfusion of human blood such as the determination of the Rh factor, the danger of transferring virus diseases and homologous serum jaundice and the possible spread of malaria, syphilis and various other serious infectious diseases, etc., have been rapidly increasing, therefore be it

Resolved, That the following basic principles form the long term policy of the California Medical Association with respect to the transfusion of blood and the establishment of blood banks:

1. That all blood banks be owned and/or directly controlled by county medical societies.
2. That regional blood banks be established in general conformity with the statewide plan outlined by the joint committee of the California Medical Association, the California State Board of Health and others, as set forth in a report entitled "Report on Blood Bank Services in California" submitted by the State Department of Public Health to the Governor and the Legislature in January, 1947.
3. That the control of standards in these banks be under the supervision of the State Board of Health

to the extent and as set forth in S.B. 1257, introduced in the 1947 Legislature as finally amended on June 5, 1947.

4. That these banks operate on a non-profit principle with charges for blood placed at actual cost.

5. That the cooperation and assistance of civic, fraternal, religious, charitable, labor and business organizations be sought in order to stimulate interest in and donors for such blood banks.

6. That the California Medical Association stands ready to assist county medical societies or groups of such societies in implementing the policies outlined above.

On motion by Cline, seconded by MacDonald, the following resolution was unanimously adopted:

Resolved, That the Council of the California Medical Association express to the American Red Cross its appreciation of the interest which the American Red Cross has manifested in the furnishing of blood and blood fractions to the public of the State of California, and be it further

Resolved, That the Council of the California Medical Association express its opinion that the proper function of the American Red Cross in the provision of blood and blood fractions is and should be limited to the procurement of donors and the transportation of blood, and be it further

Resolved, That it is not the proper function of the American Red Cross to establish and maintain facilities for the processing and provision of blood or blood fractions, and be it further

Resolved, That copies of the resolutions be forwarded at once to all component county societies and to such representatives of the American Red Cross as are interested, to each state society and to the American Medical Association.

23. *Alternate Delegate to American Medical Association:*

The Chairman called attention to the fact that Dr. Ralph Eusden had been elected a Delegate to the American Medical Association at the C.M.A. 1947 Annual Session and that his election had left a vacancy for the position he had previously held as Alternate to Dr. Donald Cass, Delegate. Dr. Ewing L. Turner of Los Angeles was nominated to fill this vacancy until the next meeting of the C.M.A. House of Delegates and was unanimously elected.

24. *Public Policy and Legislation:*

(a) Mr. Whitaker reported a highly satisfactory response to the initial issue of *C.M.A. Public Relations News* which was authorized at an earlier meeting. He also stated that the public response to the radio program on its new 30-minute Sunday afternoon hour was greatly improved over the former 15-minute evening program. Mr. Whitaker also reported that more than 800 of the 985 San Francisco physicians serving on the panel of the Health Service System of California had signed resignations from the service, to become effective when and if a committee of the San Francisco County Medical Society so decides.

Mr. Whitaker also reported on the cordial reception given the C.M.A. radio program "California Caravan" by the State Congress of Parent-Teacher Associations and suggested that the Association express its thanks for this support. It was regularly moved, seconded and voted that the President write a letter of appreciation.

(b) Dr. Murray reported on the Washington legislative situation and suggested that all California physicians who are to appear before Congressional committees should clear their appearances and testimony through the Washington office of The United Public Health League. This would remove any chance of ambiguity or unrelated efforts in any movement by American medicine as a whole.

Dr. Murray also reported a request which had been received from Hon. Alfred W. Robertson, chairman of a joint legislative committee to study revision of the California State Constitution, asking that a representative of the C.M.A. be named to an advisory committee. On motion duly made and seconded, it was voted that Dr. John W. Cline be named to this appointment.

26. *California State Nurses Association:*

A request from the California State Nurses Association was presented, asking that the C.M.A. act to encourage the issuance of standing orders for industrial plant nurses by industrial physicians. On motion duly made and seconded, it was voted to refer this matter to a committee headed by Dr. Peter Blong of Alhambra, which is already in contact with a liaison committee from the California Nurses Association.

27. *Agenda of Council Meetings:*

On motion by Lum, seconded by Green, it was voted that the agenda of Council meetings be prepared and mailed to all Councilors at least a week in advance of the meeting date, together with copies of letters or other items which merit advance study by the Councilors.

28. *Time and Place of Next Meeting:*

It was agreed to hold the next Council meeting in San Francisco on Saturday and Sunday, December 20 and 21, 1947.

29. *Adjournment:*

There being no further business to come before the meeting, it was voted to adjourn at 4:15 p.m.

Executive Committee Minutes*

The 204th meeting of the Executive Committee of the California Medical Association was called to order by Chairman Sidney J. Shipman at the Family Club, San Francisco, August 6 at 7:15 p. m.

1. *Roll Call:*

Present were Chairman Shipman, President John

* These minutes and the actions taken by the Executive Committee will be subject to approval by the Council at its next meeting.

W. Cline, Council Chairman Edwin L. Bruck, Editor Dwight L. Wilbur (ex-officio) and, by invitation, Doctor Wilton L. Halverson, State Director of Public Health, and Mr. John Hunton, Executive Secretary.

Absent: President-Elect E. Vincent Askey, Speaker L. A. Alesen and Secretary L. Henry Garland (ex-officio).

2. State Department of Health:

(a) Doctor Halverson presented an outline of a field training program of the State Department of Health, to be carried on under a four-year grant of \$104,500 from the W. K. Kellogg funds. This program would train health officers, public health nurses, sanitariums and other technicians and would aim at increasing the supply of trained personnel available for public health work. The Kellogg grant would start at \$55,500 the first year, decrease to \$32,000 the second year, to \$12,000 the third year and \$5,000 the fourth year. This grant would be for the purpose of providing a demonstration of the adequacy of a field training program, with the thought that such a program, if successful, could be financed from other funds for future years.

Doctor Halverson suggested that representatives of the California Medical Association might sit on a committee to direct this program.

(b) Doctor Halverson discussed the Crippled Children's program and presented tables showing the cases treated, an outline of the law and other material. It was agreed a wider distribution of professional personnel serving the program should be obtained if possible.

(c) Doctor Halverson discussed the Red Cross blood bank program in terms of the California situation. He was advised that the Council had voted that local county medical society approval should be secured where Red Cross blood banks were to be established.

(d) Doctor Halverson discussed proposed changes in the regulations governing clinical laboratories, these amendments to be discussed by the State Board of Health at a coming meeting. The intent of the proposed changes would be to require more exact education prerequisites for the granting of licenses to technologists.

3. Contract Practice:

Doctor Shipman presented a draft of a resolution which would signify the intent of the C.M.A. Council not to approve any prepayment medical care plans which might be formed by more than one physician. It was agreed that this subject should be further discussed by the Council.

4. Chamber of Commerce:

Mr. Hunton presented the request of the California State Chamber of Commerce for continued support and on motion duly made and seconded, it was voted that the annual subscription of \$250 to the California State Chamber of Commerce should be continued this year.

5. Adjournment.

C.M.A. Annual Meeting April 11-14, San Francisco

The 1948 Annual Meeting of the California Medical Association will be held in San Francisco, April 11 to April 14, 1948, inclusive (Sunday through Wednesday). The Committee on Scientific Work anticipates an excellent attendance, especially in view of the fact that improved arrangements are being made for meeting places. It is planned to use the St. Francis Hotel, the Sir Francis Drake, the Curran Theatre, and the Geary Theatre. These four buildings are located within a block of each other and should provide excellent facilities.

INFORMATION FOR AUTHORS, MEMBERS OF SYMPOSIA AND PANEL DISCUSSIONS

The following information for authors and discussants is reprinted for the edification of all members:

1. All members taking part in such programs should have a manuscript ready for presentation to the Section Secretary. The manuscript does not need to be followed verbatim at the meeting itself, but must be available for consideration by the Editor of CALIFORNIA MEDICINE for publication in that Journal.

2. All manuscripts become the property of the California Medical Association until officially released, upon written request of the author, for publication elsewhere.

3. Members are reminded that each lantern slide takes approximately one minute for presentation and that no lantern slides should have more than about six lines of text on them. Lantern slides containing voluminous chart or statistical data are largely a waste of time. The interest of the audience is better held by succinct presentation of the principal points.

4. Authors must inform Section Secretaries in advance of the meeting of any special equipment needed for presentation of papers, other than standard lantern slides (3½" x 4" glass slides).

5. Extra time is not allowed for the presentation of slides, movies or other material, however remarkable, except by arrangement at least three months prior to the annual meeting.

6. Authors submitting charts or pictures for use with their articles when published are reminded of the rule limiting to \$25 the amount which CALIFORNIA MEDICINE may spend for engravings to reproduce the illustrations. (Twenty-five dollars will buy approximately a half page of engravings for shaded drawings or photographs and three-quarters of a page of absolute black and white engravings. When an author wishes to include more engravings than can be paid for by CALIFORNIA MEDICINE under its \$25 limitation, the usual practice is to bill him for the amount by which the cost of engravings exceeds the limit.)

INFORMATION FOR SECTION SECRETARIES

The following information is being reprinted for the benefit of all Section Secretaries:

1. All papers read at the Annual Meeting must be ready for handing to the Section Secretary at that meeting.

2. Speakers should be urged to prepare a condensed version of their papers for verbal presentation (in addition to the regular copy for submission to the Section Secretaries for the Editor of CALIFORNIA MEDICINE).

3. All papers must be preceded by an abstract not to exceed 50 words, mailed to the Association office, 450 Sutter Street, San Francisco, by February 1.

4. Papers should be designed for presentation in 15 minutes; the maximum time allowed is 20 minutes. The Section Chairmen should signal speakers at the end of 17 minutes, to indicate that only three minutes remain.

5. Discussions should ordinarily be limited to five minutes; no person may speak twice on a subject except by permission of the meeting; the authors' closing discussions are limited to five minutes.

6. Section Chairmen are requested to notify speakers when their time is reached.

7. Under special circumstances (distinguished authorities, specially invited discussants, members of symposia, etc.), speakers or discussants may be allocated times longer than the above. This must be done by prearrangement, with the allotted time indicated in the program.

8. All papers read at the Annual Meeting are accepted on the condition that they are contributed solely to CALIFORNIA MEDICINE; members desiring to publish their papers elsewhere must make written application to the Editor.

9. A member may not present a paper in each of two succeeding years, or more than one paper at each session. Failure of a member to comply with these rules precludes acceptance of further papers for a period of two years.

10. Section Secretaries must inform the Committee on Scientific Work in advance of the Annual Meeting of any special equipment needed for speakers, other than standard size lantern slide projector and screen.

Proposed Amendments To C.M.A. Constitution

First publication of six resolutions to amend the Constitution of the California Medical Association is made herewith. The resolutions were introduced in the House of Delegates at the 1947 annual meeting and are to be voted upon at the 1948 annual meeting.

Proposed constitutional amendment relative to annual assessment of dues

RESOLVED, That Section 1 of Article XI of the Constitution of this Association, California Medical Association, be and the same hereby is amended by

adding to said section paragraph headings, by adding to said section a provision that the House of Delegates shall have power to reduce the annual per capita assessment of dues upon certain conditions, and by recasting said section to read as follows: "Section 1.—Annual Assessment of Dues—Other Sources of Funds—Appropriations.

"(a) Annual Dues: Funds shall be raised by equal annual per capita assessment of dues from the active and associate members, assessment of dues upon the associate members to be one half of that upon the active members. The amount of the assessments shall be fixed by the House of Delegates by a majority vote of the members present and voting.

"(b) Waiver of Dues—War Service: Annual dues may be reduced or waived with respect to those members serving in the armed forces of the United States during the whole or any part of any year, and the Council may in its discretion refund in whole or in part from the funds of the Association dues paid in 1940 or in 1941 by or on behalf of active members if such members were at the time actually in the service of the armed forces of the United States.

"(c) Reduction of Dues—Special Cases: The House of Delegates, in fixing the amount of annual dues for any year, may at the same time provide for a reduction in annual dues for such year for those active members of the Association who, during the year, are ill or injured and wholly unable to engage in the practice of medicine or other gainful employment for a period of three or more consecutive months, or for those active members who engage in postgraduate work during the year, or for those active members who graduated from medical school less than five years prior to the first day of January in the year concerned. The House of Delegates, in providing for reduction of dues for any or all of the foregoing classes of active member, may designate the amount of the reduction and the procedure whereby such reduction may be obtained by an active member entitled thereto, or may delegate to the Council the power to fix the amount of the reduction and the procedure for obtaining same.

"(d) Other Sources of Funds—Special Assessments: Funds may also be raised by any of the following methods: I. publications of the Association; II. voluntary contributions; III. bequests, legacies, devises, and gifts; IV. special assessments levied by the House of Delegates; and V. in any other manner approved by the House of Delegates. In the event that the House of Delegates levies any special or other assessment other than the annual assessment of dues, it may, in the resolution levying the assessment, fix and determine the time within which such assessment must be paid, the class or classes of members of the Association upon whom it is levied, and the penalty, if any, including forfeiture or suspension of membership in this Association or the component county medical society, or both, to result from nonpayment thereof within the time prescribed.

"(e) Appropriations of Funds: Any resolution passed and adopted by the House of Delegates at any

regular or special session thereof, which provides for or contemplates the appropriation or expenditures of the sum of more than \$1,000, shall not be effective for any purpose unless and until approved by the Council. All appropriations, regardless of amount, approved and made by the Council, shall, if expended, be reported to the House of Delegates at its next annual session, and any unexpended portion of any thereof shall be included in the annual budget.

"(f) Physicians' Benevolence Fund: At least \$1.00 out of the annual dues paid by each member of the Association shall be allocated to the Physicians' Benevolence Fund and shall only be used for the purposes as set forth in the By-Laws."

Proposed constitutional amendment relative to life membership

RESOLVED, That Section 1(e) of Article IV of the Constitution of this Association, California Medical Association, be amended to read as follows: "(e) Life Members.

"Qualifications: Life members of the California Medical Association may be elected by the Council on the recommendation of any component county society from those active members thereof who (1) have been active members of this Association continuously for a period of twenty (20) years or more and are more than fifty (50) but less than sixty (60) years of age and have tendered to this Association a life membership fee of one hundred fifty dollars (\$150.00) or such other sum as the House of Delegates may from time to time determine; or (2) have been active members of this Association continuously for twenty-five (25) years or more and are more than sixty (60) but less than sixty-five (65) years of age and have tendered to this Association a life membership fee of one hundred dollars (\$100.00) or such other sum as the House of Delegates may from time to time determine; or (3) have been active members of this Association continuously for a period of twenty-five (25) years or more, are more than sixty-five (65) but less than seventy (70) years of age and have tendered to this Association a life membership fee of fifty dollars (\$50.00) or such other sum as the House of Delegates may from time to time determine; or (4) have been active members of this Association continuously for twenty-five (25) years or more and are more than seventy (70) years of age. Those active members falling within Classification 4 need not be recommended by any component county society but are eligible to life membership on direct application to the Council. The Council may not elect to life membership any active member whose membership has not been continuous or who has ever been censured, suspended or expelled from the American Medical Association, this Association, any state medical association which is a constituent unit of the American Medical Association, or any county medical society which is a component part of this Association or a unit of any other state medical association.

"Obligations and Rights: Life members shall not

pay dues and shall not be liable for assessments of any kind or nature. If active membership in good standing is maintained in his component county society, each life member shall have the right to vote, to hold office, and shall have all other rights and privileges of the Association. If active membership in his component county society is not maintained, the rights and privileges of a life member shall be those of a retired member."

Proposed constitutional amendment relative to rights of active members

Subdivision (a) of Section 1 of Article IV of the Constitution of this Association, California Medical Association, is hereby amended by adding to the end of the second paragraph of said subdivision (a) the following: "except that an active member who is gainfully employed or retained, whether compensated by a salary, commission, retainer or other method, by this Association or by any component county society or by any corporation, association or organization controlled by this Association or any component county society, may not hold office in this Association or be a member of the House of Delegates during such time as he is so gainfully employed or retained."

So that the second paragraph of said subdivision (a) of Section 1 of Article IV of the Constitution shall hereafter read as follows: "Rights: An active member shall have the right of suffrage and all other rights and privileges of the Association; except that an active member who is gainfully employed or retained, whether compensated by a salary, commission, retainer or other method, by this Association or by any component county society or by any corporation, association or organization controlled by this Association or any component county society, may not hold office in this Association or be a member of the House of Delegates during such time as he is so gainfully employed or retained."

Proposed amendment to the constitution relative to additional classes of membership

RESOLVED, That Article IV, Section 1 of the Constitution of this Association, California Medical Association, is hereby amended by adding a new subdivision to read as follows:

"(f) Additional Classes of Membership: The House of Delegates may, from time to time, establish special and limited classes of membership in this Association for internes, junior and senior residents, or house officers, practicing in hospitals in this state. In establishing such special membership for internes, junior and senior residents, or house officers, the House of Delegates may determine the qualifications, duration and privileges of such membership. Unless the House of Delegates determines to the contrary, such special members shall not pay dues. The House of Delegates may also from time to time provide for affiliation with the California Medical Association, on an affiliate basis, of undergraduate medical students attending medical schools in this state. Mem-

bership obtained under this subsection (f) shall not carry with it the right to vote or hold office."

Proposed amendment to the constitution relative to inactive members

RESOLVED, That section (f) be added to Article IV to read as follows: (f) Inactive Members: Qualifications—The Council may elect as inactive members, on recommendation of the component county societies concerned, any member in good standing who leaves his practice for a period of six or more months to engage in bona fide postgraduate study, or who leaves his practice by reason of protracted illness and for whom payment of dues would be a hardship. Obligations and Rights—Inactive members shall not pay dues and shall not have the right to vote or to hold office, or if holding an office during the period away from practice shall relinquish that office.

Proposed constitutional amendment relative to dues of members in the armed services

RESOLVED, That the Constitution of the California Medical Association shall be amended: By changing Article XI, Section 1, Paragraph 2, thereof, to read as follows: "Annual dues may be reduced or waived with respect to those members serving in the armed forces of the United States during the whole or any part of any year, and in respect to any member for any cause, upon the recommendation of the Council or Executive Board or body of the respective member's component county medical association or society, and"

In Memoriam

BRUSCO, HENRY DOMINIC. Died in San Francisco, August 24, 1947, age 61. Graduate of the Cooper Medical College, San Francisco, 1908. Licensed in California in 1909. Doctor Brusco was a retired member of the San Francisco County Medical Society and the California Medical Association.

BURROWS, MONTROSE THOMAS. Died in Los Angeles, August 21, 1947, age 62. Graduate of the Johns Hopkins University School of Medicine, Baltimore, Maryland, 1909. Licensed in California in 1924. Doctor Burrows was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

COHN, HERBERT JACOB. Died in San Francisco, August 10, 1947, age 62, of a heart attack. Graduate of the University of California Medical School, Berkeley-San Francisco, 1909. Licensed in California in 1909. Doctor Cohn was a member of the San Francisco County Medical Society, the California Medical Association, and the American Medical Association.

EVANS, GEORGE HERBERT. Died in Berkeley, September 5, 1947, age 78, of a stroke. Graduate of the Wayne University College of Medicine, Detroit, Michigan, 1891. Licensed in California in 1891. Doctor Evans was a retired member of the

San Francisco County Medical Society, the California Medical Association, and Affiliate Fellow of the American Medical Association.

FAGAN, SHULER FRANCIS. Died in Los Angeles, September 4, 1947, age 52, of a heart attack. Graduate of the College of Medical Evangelists, Loma Linda-Los Angeles, 1924. Licensed in California in 1924. Doctor Fagan was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

FARROW, EDGAR JAMES. Died in San Diego, September 23, 1947, age 76. Graduate of the University of California Medical School, Berkeley-San Francisco, 1900. Licensed in California in 1900. Doctor Farrow was a member of the San Diego County Medical Society, the California Medical Association, and an Affiliate Fellow of the American Medical Association.

JONES, HARRISON WILLIAM. Died in Bakersfield, August 26, 1947, age 69, of coronary occlusion. Graduate of the University of Michigan Medical School, Ann Arbor, 1904. Licensed in California in 1912. Doctor Jones was a member of the Kern County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

MCCONNELL, ORBAN GAYLE. Killed near Santa Cruz, September 21, 1947, age 57, when his car plunged off a cliff. Graduate of the Washington University School of Medicine, St. Louis, Missouri, 1924. Licensed in California in 1932. Doctor McConnell was a member of the Santa Clara County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

NELSON, ROY FRANK. Died in Oakland, September 5, 1947, age 48. Graduate of Stanford University School of Medicine, Stanford University-San Francisco, 1924. Licensed in California in 1924. Doctor Nelson was a member of the Alameda County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

ROBINSON, SAMUEL. Died in Montecito, September 17, 1947, age 70, of hypertensive and arteriosclerotic heart disease. Graduate of Harvard Medical School, Boston, Massachusetts, 1902. Licensed in California in 1918. Doctor Robinson was a member of the Santa Barbara County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

SAMSON, PIETER. Died in Marysville, August 11, 1947, age 69, of a heart attack. Graduate of Rijks-Universiteit te Leiden Faculteit der Geneeskunde, Netherlands, 1908. Licensed in California in 1920. Doctor Samson was a member of the Yuba-Sutter-Colusa County Medical Society, and the California Medical Association.

SCHUBERT, FELIX HERBERT. Died in Los Angeles, September 11, 1947, age 44. Graduate of the College of Medical Evangelists, Loma Linda-Los Angeles, 1934. Licensed in California in 1935. Doctor Schubert was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

THIBODEAU, JOSEPH ALEXANDER. Died in San Francisco, September 1, 1947, age 70. Graduate of the University of Montreal Faculty of Medicine, Quebec, 1903. Licensed in California in 1910. Doctor Thibodeau was a retired member of the San Francisco County Medical Society, the California Medical Association, and an Affiliate Fellow of the American Medical Association.

George Herbert Evans

George Herbert Evans was born in 1869 at Ontario, Canada. After local schooling he attended the Detroit College of Medicine and Surgery where he received the degree of Doctor of Medicine in 1891. In that same year he commenced practice in San Francisco. He followed his profession continuously in that city until his retirement from active practice in 1933.

Early in his career he became interested in tuberculosis and, while engaged primarily in the private practice of internal medicine, he always took an active part in any tuberculosis work both locally in San Francisco and in California, or with the National Tuberculosis Association as well as international organizations.

He was a delegate to the International Tuberculosis Congress in Paris in 1905. One of the founders of the San Francisco Tuberculosis Association, he was also one of the original organizers of the first voluntary tuberculosis association of the State of California, now known as the California Tuberculosis and Health Association.

While Dr. Evans was helping to organize the fight against tuberculosis in the northern part of the state, Dr. Francis M. Pottenger was doing the same thing for Southern California. Over a period of many years they met at least monthly to discuss these and other affairs of mutual interest. In those days this required tedious train travel over a long week-end.

Dr. Evans was given charge of the so-called "Tuberculosis Colony" instituted by the San Francisco Department of Health in 1906. This marked the first attempt of the municipality at the isolation of the actively tuberculous. It started as a few tents in the old County Hospital grounds at Ingleside. Dr. Evans was very fond of telling the story of his first resident who came to him wondering where he would find the early cases they were hoping for that were considered treatable. Dr. Evans instructed this young physician to "go over to the General Hospital and look through the wards for patients that are coughing, examine their sputum for tubercle bacilli and you will find enough cases to fill all of our few beds." It turned out to be just that way.

In 1908, while President of the California Medical Association, he initiated the movement which resulted in the formation of the Citizen's Health Committee which effected control of the bubonic plague epidemic then current in San Francisco. For many years Dr. Evans was the oldest living Past President of the California Medical Association.

In 1913 he was appointed Assistant Clinical Professor of Medicine at the University of California Medical School to organize a Department of Tuberculosis, and up to 1933 was actively engaged in teaching in that medical school through the wards of the San Francisco Hospital. He always approached

the disease tuberculosis as an important part of the field of internal medicine. His carefully prepared lectures to the junior and senior classes were meticulously given, usually at the bedside of a patient. Personal acquaintance with the pioneers of modern methods of tuberculosis treatment and a wide knowledge of existing institutions enabled him to illustrate and drive home a given point with an anecdote of a famous physician or a well known institution, which made his lectures alive and of great interest to the students. He took a real, human interest in the members of his classes and went far out of his way to do the helpful personal things that an older physician can for a neophyte, and also to instill the high ideals of the practice of medicine of which Dr. Evans was a shining personal example.

Dr. George Evans, together with Dr. Philip King Brown, feeling the need of a private institution for the care of their own tuberculosis patients and knowing the necessity of having the many meticulous details in treatment carried out under their personal direction and according to their own ideas, founded Alum Rock Sanatorium in the outskirts of San Jose. This has grown into a non-profit institution of wide service and usefulness and stands as another monument along his professional pathway.

Always active in medical society work, Dr. Evans was an ex-president of the San Francisco County Medical Society, the California Academy of Medicine, the California Tuberculosis Association, and the American Therapeutic Society. He was also a fellow of the American College of Physicians and American Medical Association.

After his retirement in 1933, he spent much of his time abroad in studies on tuberculosis, medical history, and housing. When World War II interrupted this, he continued these studies in and about San Francisco.

One of the fruits of these labors was the section on "The Early History of Tuberculosis in the State of California," for the California Tuberculosis Association, in which much interesting and some previously undisclosed facts were brought to light. During these years of retirement he served as a member of the Committee on Archives of the National Tuberculosis Association.

In April, 1947, jointly with Dr. Francis Pottenger, he was awarded the first of the Annual Medals of the California Tuberculosis and Health Association for outstanding achievement in the field of tuberculosis.

Dr. Evans died quietly from a cerebral hemorrhage on September 5, 1947. Thus ended the full life of an eminent physician, a contemporary of Osler, Koch and that group of pioneer physicians who opened up new eras in the field of tuberculosis.

HAROLD GUYON TRIMBLE, M.D.

NEWS and NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

Dr. Monroe Eaton has resigned as director of the Virus Laboratory of the California State Department of Public Health to become Associate Professor of Bacteriology in the Harvard University Medical School, and Dr. Jessie M. Bierman has given up her post as chief of the department's Bureau of Maternal and Child Health to join the faculty of the University of California School of Public Health as Professor of Maternal and Child Health.

LOS ANGELES

The Robert S. Fox Urological Foundation, with Dr. Franklin Farman, Dr. W. O. Mendenhall and Lewis A. Myers as trustees, has been established in Whittier. Endowed by Robert S. Fox, of Seattle, the foundation was created for the purpose of stimulating and extending study and research in urology and to develop and improve equipment and medicine. It is proposed that trust funds be used for research, for the education of doctors in urology, and to assist in meeting medical expenses of persons suffering from urological diseases.

Dr. O. Leonard Huddleston, Professor of Physical Medicine at the University of Southern California Medical School, was elected president-elect of the American Congress of Physical Medicine at that organization's meeting in Minneapolis early in September.

Dr. Wilbur Bailey, Los Angeles, has been appointed by Governor Earl Warren to the State Board of Medical Examiners, succeeding Dr. J. R. Walker of Fresno.

Acting for King Gustav V of Sweden, Walter G. Danielson, Swedish Consul in Los Angeles, last month conferred Sweden's Royal Order of Vasa upon Dr. Charles F. Nelson of Beverly Hills for "achievements in the practice of medicine and surgery and his scientific work in the field of medical research."

Dr. Hyman Tavis, former physician-psychiatrist for the state of Illinois and the Veterans Administration, has been appointed to the teaching staff of University of California Extension in Los Angeles.

Since 1942 Dr. Tavis has been senior physician and psychiatrist with the California Youth Authority. He is lecturing on "Psychiatric Aspects of Juvenile Delinquency" at the Extension Center, 813 South Hill Street. His lectures are a part of an expanded program of evening courses in psychology being offered in Los Angeles by the adult education division of the state University.

The Estelle Doheny Eye Foundation announces the establishment of an Eye Laboratory located at St. Vincent's Hospital in Los Angeles, designed to provide certain modern ophthalmic facilities badly needed in Southern California.

The immediate functions of the laboratory are:

1. To serve as a pathological laboratory for the diagnosis and registration of pathological specimens, with preparation of gross specimens and microscopic slides for ophthalmologists submitting specimens, and for the building up of a museum of Eye Pathology.

2. To serve as a bacteriological laboratory wherein diagnostic scrapings, smears and cultures can be studied, animal inoculations made, and the sensitivity of organisms to various drugs and antibiotics determined.

3. To provide facilities for fundus, gross, and slit-lamp photography, and to maintain a library of photographs and motion pictures for teaching of ophthalmology.

4. To provide an "Eye Bank" for Southern California, with registry of potential donors and recipients. Donor material will be collected, examined and distributed, and facilities may later be provided for limited instruction in corneal transplant procedures.

5. To distribute and loan certain drugs and equipment that are not otherwise available in the community.

6. To make available certain special equipment for radiation therapy of the eye for use outside the laboratory.

Dr. Alan Woods, Professor of Ophthalmology at Johns Hopkins Medical School, Dr. Cecil O'Brien, Professor of Ophthalmology at University of Iowa Medical School, and Dr. Phillips Thygeson, formerly Professor of Ophthalmology at Columbia University, and now Associate Professor at the University of California, will serve on the Advisory Board. Dr. A. Ray Irvine, Professor of Ophthalmology at the University of Southern California, will act as chairman of the original board. It is contemplated that the Advisory Board will also include prominent business and professional leaders as well as representatives from the eye departments of local hospitals, medical schools and the Eye Section of the Los Angeles County Medical Society.

Dr. Peter Soudakoff, formerly Associate Professor of Ophthalmology at the Peking Union Medical College, will serve as full-time pathologist at the laboratory. As part of the Residency program of the Eye Service of the Los Angeles County General Hospital and certain local Veteran's Hospitals, each resident will spend two or three months at the laboratory. It is anticipated also that a Research Associate, granted a Fellowship in Basic Ophthalmic Research by the Foundation, will be added to the laboratory staff from time to time.

SANTA CLARA

Dr. Robert A. Powers resigned September 1 as head of the radiology department of San Mateo Community Hospital. Dr. Carl Benninghoven has been named to fill the vacated post.

Dr. Frederick Proescher has retired as pathologist and bacteriologist of the Santa Clara County Hospital, a position he had held for 23 years. His successor is **Dr. Houghton Gifford** of San Francisco.

SAN DIEGO

Dr. Hubert F. Andrews, who had been San Diego County psychiatrist for 17 years, retired from that position September 14.

Speaking recently before the semi-annual conference of the Western States Better Business Bureau, **Robert J. Bauer**, general manager of the Los Angeles bureau, said, according to an Associated Press report, that 55 per cent of the doctors in California accept rebates from medical supply dealers and technicians for sending business their way. Mr. Bauer is quoted as having said: "Oculists and x-ray laboratory technicians are the chief offenders. A majority of the oculists recommend dispensers of glasses to patients in return for a fixed fee. X-ray technicians often kick back as much as 50 per cent to a doctor."

SAN MATEO

The board of directors of the California Division of the American Cancer Society, meeting in San Francisco September 27, appointed **Mrs. W. Parmer Fuller** as State Commander. A resident of San Mateo, Mrs. Fuller as county commander has organized the Cancer Society's work in every town in San Mateo County. At the time she was chosen State Commander, Mrs. Fuller said: "Our work at present is organized in only 19 of the 52 counties of this state. I pledge that within a year we will have every single county organized."

GENERAL

The American Academy of General Practice was founded at Atlantic City, June 10, 1947, "to solve certain problems of the general practitioners which have not been met by the existing medical organizations."

Announcement of the formation of the new organization says that "the Academy was founded by a group of general practitioners who have elected to become and to remain general practitioners because of their sincere belief that general practice offers one of the highest and most honored callings, one of the happiest human relation experiences, and one of the most meritorious services of our day. They also believe that general practice is the soundest method of distributing medical care to the American people both from the economic and medical aspects."

The purposes of the Academy as outlined in the Constitution are as follows:

1. To promote and maintain high standards of the general practice of medicine and surgery;
2. To encourage and assist in providing post-graduate study for general practitioners in medicine and surgery, and to encourage and assist practicing physicians and surgeons to participate in such training.
3. To encourage and assist young men and women to prepare, qualify and establish themselves in general practice;
4. To protect the right of the general practitioner to engage in medical and surgical procedures for which he is qualified by training and experience;
5. To advance medical science and private and public health.

The announcement further says that "the membership of the Academy has established the policy of cooperating fully with the American Medical Association and the existing medical organizations for the welfare of the medical profession at large. Every general practitioner has a strong obligation to qualify for membership in the local and national academies."

Further information can be obtained from **Paul A. Davis, M.D.**, President, 633 E. Market Street, Akron, Ohio, or **S. R. Truman, M.D.**, Secretary, 1904 Franklin Street, Oakland 12, California.

The American Academy of Allergy will hold its annual convention at Hotel Jefferson, St. Louis, Missouri, December 15-17 inclusive. All physicians interested in allergic problems are cordially invited to attend the sessions as guests of the Academy by registering without payment of fee. The program, the scientific and the technical exhibits have been arranged to cover a wide variety of conditions where allergic factors may be important. Papers will be presented dealing with the latest methods of diagnosis and treatment as well as the results of investigation and research. Round table conferences will be held on Monday afternoon, December 15, 1947. Advance copies of the program may be obtained by writing to the Chairman on Arrangements, **Charles H. Eyer-mann, M.D.**, 634 North Grand Boulevard, St. Louis, Missouri.

Fifty-four California physicians, including four in the navy, were accepted into fellowship by the American College of Surgeons at its thirty-third convocation, in New York, September 12.

Listed alphabetically, those in civilian practice are: **Jack K. Afflerbaugh**, Pomona; **Nathan Barshop**, Los Angeles; **William Brock**, San Francisco; **Truman W. Brophy**, Los Angeles; **George F. Calvin**, Oakland; **R. Glenn Craig**, San Francisco; **Wilber D. Currier**, Pasadena; **Lawrence L. Davidson**, Santa Monica; **John W. Dorsey**, Long Beach; **Howard H. Drake**, Los Angeles; **David J. Dugan**, Oakland; **James S. Edwards, Jr.**, Fort Bragg; **Charles W. Gilfillan**, Hollywood; **Elmer F. Goel**, Beverly Hills; **William T. Grant**, Los Angeles; **David R. Hadden**, Berkeley; **James T. Harkness**, Berkeley; **Samuel D. Hart**, Beverly Hills; **Ernest W. Henderson**, Alameda; **Lowell R. Hill**, Long Beach; **Wilfred M. G. Jones**, Glendale; **Samuel Katz**, Los Angeles; **J. Harold Kay**, Oakland; **John M. Kenney**, Santa Rosa; **Thomas F. Keyes**, Marysville; **John H. Leary**, Downey; **Gabe C. Long**, San Jose; **Michel Loutfallah**, Santa Barbara; **Ian Macdonald**, Los Angeles; **Alexis G. Maximov**, Santa Rosa; **Curtis H. McDonnell**, Sacramento; **John F. Menke**, Sacramento; **G. Wendell Olson**, Fullerton; **Seibert C. Pearson**, Long Beach; **Max E. Pickworth**, San Jose; **Edwin B. Plimpton**, Los Angeles; **Herman I. Riddell**, Los Angeles; **Carroll A. Russell**, Watsonville; **Milton V. Sarkisian**, Sacramento; **Frederic P. Shidler**, San Francisco; **Arthur E. Smith**, Los Angeles; **Donald R. Smith**, San Francisco; **Harold D. Spickerman**, Santa Monica; **Clarence A. Splithoff**, Oakland; **David H. Sprong, Jr.**, Santa Monica; **John H. Steelquist**, San Diego; **Ludwig Strauss**, Los Angeles; **Warren A. Wilson**, Los Angeles; **William H. Wright**, Santa Monica; **Maurice L. Zeff**, Berkeley.

The four new Fellows in the navy, with stations in California, are: **Commander Lawrence L. Bean**, Long Beach; **Commander James H. Higgins**, San Diego; **Captain William M. Russell**, Altadena; **Captain Clifton A. Young**, Mare Island.

INFORMATION

Social Security in Japan

Considerable interest was aroused by the recent announcement that a mission from the Social Security Board was to go to Japan to investigate health care services and to recommend measures for the provision of adequate medical care for the Japanese. Medical men throughout the country were particularly curious about this mission because the personnel of the Social Security Board group was known to be heavily weighted with, if not entirely made up of, vigorous proponents of a system of compulsory health insurance.

Inasmuch as this mission was going to Japan under auspices of the Army, Doctor L. H. Garland, Secretary of the California Medical Association, went straight to the top to ascertain just what the situation was. He wired Hon. Kenneth C. Royall, Secretary of War, as follows:

"KINDLY ADVISE IF SOCIAL SECURITY MISSION OF COMPULSORY HEALTH INSURANCE ADVOCATES IS GOING TO JAPAN UNDER WAR DEPARTMENT ORDERS. IS WAR DEPARTMENT INDIRECTLY SPONSORING COMPULSORY HEALTH INSURANCE FOR JAPAN? PLEASE WIRE REPLY."

Under date of September 9, 1947, Major General Edward F. Witsell, Adjutant General of the Army, replied to Doctor Garland as follows:

"This is in reply to your telegram of 26 August 1947, addressed to the Secretary of War, requesting information in connection with the Social Security Mission which was sent to Japan.

"In the aftermath of the war and the economic stringencies resulting therefrom the Japanese Government has found manifold difficulties in the implementation of its old Health Security Laws. The Japanese Government appealed to the Supreme Commander for the Allied powers for advice and assistance in consolidation and simplification of existing codes in view of the general revision in governmental structure now taking place. Inasmuch as the Supreme Commander for the Allied powers did not possess the expert ability called for, he requested competent personnel for a short period of time to consult with and advise in the premises.

"The purpose of this Mission is to advise with reference to the coordination and application of social security measures which have been in practice in Japan for many years. The scope of the Mission is not designed to initiate any concepts beyond present Japanese laws and will be limited merely to pass upon the adaptability, and practicability of those now existent.

"Nothing new is planned beyond making old prac-

tices work. There will be no effort or thought on the part of the United States Government services to inject themselves into the matter nor to impose any preconceived or controversial issues such as the socialization of medicine on Japan and the action in making experts temporarily available represent nothing but healthy assistance in response to a normal request from a fellow governmental agency."

This reply seems clear enough. It will be interesting to follow developments in this matter to see if General Witsell's statements are fully borne out. Watchfulness is particularly indicated by pertinent charges made by Representative Forest A. Harness (R., Indiana), chairman of a house subcommittee investigating expenditures by agencies of the Federal Government on publicity and propaganda for compulsory health insurance. The charges were made in a letter to Chairman John Taber of the Appropriations Committee urging that the committee in future eliminate funds for overseas travel by staff members of federal agencies interested in advancing socialized medicine in foreign lands.

Representative Harness presented eight specific findings and charges as the conclusions of his committee's investigation of the mission to Tokyo:

"(1) That the health mission to Japan is composed entirely and exclusively of men long identified in the public record as advocates and proponents of socialized medicine not only in the United States but throughout the world.

"(2) That the real purpose of this mission is to lay the ground work for a system of socialized medicine in Japan.

"(3) That the scheme for such a mission originated in the Division of Research and Statistics in the Social Security Board in Washington, and nowhere else.

"(4) That the nominal request for the mission was engineered through the General Headquarters of the Supreme Commander in Tokyo by federal employees sent from Washington for that particular purpose.

"(5) That General Douglas MacArthur does not favor—and does not approve—any plan to establish compulsory socialized medicine in Japan.

"(6) That the dispatch of this mission to Tokyo for the purpose indicated in Mr. Wandel's letter to Mr. Falk under date of June 14, 1947, is a gross misuse of public funds.

"(7) That the real purpose of the mission is not to assist Japan in working out her basic problems in health and welfare, but to force upon that country a compulsory system of socialized medicine.

"(8) That although the questions here involved

are of a health and medical nature, the Surgeon General of the United States Army was not consulted in reference to the problems involved."

Harness' letter said further:

"I deem it inappropriate for federal employees, at the expense of the American taxpayer, to travel throughout the world preparing or assisting in the preparation of legislation to be adopted by foreign countries when similar legislation, long pending, has not been approved by the Congress of the United States.

"We are continuing our investigation of the origins and real purposes of the Tokyo health mission. Meanwhile we believe that your Committee would want to have these facts before it when the next appropriation bill comes up for the Public Health Service and the Social Security Board.

"It has also come to the attention of our committee," the letter said, "that Dr. B. M. Davis, one of the members of the Tokyo mission, returned only recently from London, where he was attached to the British Ministry of Health, to assist in the national program for socialized medicine in England. He is the son of Mr. Michael M. Davis, chairman of the executive committee of the Committee for the Nation's Health, the foremost lay organization agitating for socialized medicine in the United States, as embodied in the Wagner-Murray-Dingell bill. The Committee for the Nation's Health, as our previous reports have delineated, is the principal national organization in the United States engaged in distributing the propaganda of the Social Security Board supporting socialized medicine."

S. F. Medical Society States Position on Health Service System

The following is the text of a letter from the San Francisco County Medical Society to the Health Service Board, Health Service System of San Francisco.

Gentlemen:

This letter is to give formal notice to your Board that the San Francisco County Medical Society has received the resignations of 880 doctors from the professional staff of the Health Service System, which will become effective immediately when submitted by our Society to your Board.

We also wish to advise you that at a special meeting of the Board of Directors of the Society it was decided to submit these resignations to your Health Service Board on November 10, 1947 unless, prior thereto, your Board has agreed to reorganization of the Health Service System on a sound medical basis acceptable to the Society and the doctors who serve the System.

This notice is given so that your Board, if it sees fit, may appoint a committee to discuss the problem with a similar committee representing our Society

before final action is taken, and so that necessary steps can be taken to provide adequate medical care for the thousands of city employees who are compelled to pay dues to the Health Service System.

Regardless of the course of action you may decide upon, we wish to assure you that there will be no interruption in the medical care provided city employees. Their doctors will continue to treat them, but as private patients, if your Board fails to provide an acceptable alternative program. For your information, the County Medical Society maintains a physician-patient service agency known as the Bureau of Medical Economics—and that Bureau will guarantee to arrange for the finest standard of medical care in any distressed cases among city employees, regardless of ability to pay.

As you well know, our County Medical Society, for months past, has protested to your Board against questionable practices and unethical policies of the HSS management, designed to lower the quality of medical care provided city employees and members of their families who are enrolled in the Health Service System. We have repeatedly warned that reputable doctors could not continue to serve the System unless conditions were corrected.

The advice of the medical profession has been entirely disregarded and our communications have gone unanswered. Every suggestion we have made, in an attempt to avert the impending crisis, has been brushed aside. Under the circumstances, if there is a breakdown in the Health Service System, your Board must accept full responsibility for its collapse.

To every doctor who is faithful to his profession, the health and welfare of his patients must come first, and the great majority of the doctors on the HSS panel have decided that they cannot in good conscience remain as members of your staff. They have reached this decision because of constant bureaucratic interference with their practice of medicine and constant pressure from the HSS management to deny their patients adequate medical and hospital care.

There is no need in this letter to re-state all the medically unethical and actuarially unsound policies and procedures of HSS which have contributed to the present crisis. The repeated protests and warnings of the County Medical Society, appealing to your Board for remedial action, are in your files and are a matter of public record.

Specifically, we refer you to our letter of June 18, 1947, calling the attention of your Board to a letter sent out by your medical director, Dr. Alexander S. Keenan, to all doctors on the HSS panel, pleading that the Health Service System was in financial difficulties and calling on the doctors to lower the quality of medical care provided city employees and insured members of their families.

This indefensible directive from the HSS management has never been recalled or modified in any degree, despite the fact that our Society warned your Board that we could not countenance treating city employees as "second class patients," or endangering their health by refusing them adequate medical attention.

This HSS directive, in direct violation of sound medical practice, asked doctors on your professional staff to:

1. Limit and restrict the use of laboratory tests, x-ray examinations and normal diagnostic procedures—and to substitute "routine examinations" for careful, scientific diagnosis. The diagnostic procedures thus restricted are essential safeguards for the early detection of cancer, tuberculosis, pneumonia and other serious diseases.

2. Discourage patients with "minor ailments" from seeking medical treatment and advise them to use "home remedies."

3. Deny hospitalization to HSS members, except in emergency cases, without specific authorization of the medical director of HSS.

No doctor could follow that directive from your HSS management without violating his code of ethics—and without endangering the lives of his patients.

The hundreds of resignations from the professional staff of HSS, which have been turned in to our Society for submission to your Board, are a direct result of that type of questionable practice and unethical procedure in the conduct of the Health Service System.

There were fundamental faults in the framework of the Health Service System when it was first created 10 years ago—and now that complete reorganization of the System on a sound medical and actuarial basis has become imperative, unless it is to be abandoned, we believe your Board should initiate action to remedy its basic weaknesses.

The vital flaw in the Health Service System is that it is a *compulsory system*, which city employees are forced to join as a condition of their employment, and was created as a laboratory experiment in socialized medicine. Like most compulsory systems, it started out by promising too much for too little—in an attempt to stifle opposition to its compulsory payroll deduction features. And like most socialized medicine systems, when financial difficulties developed it first siphoned off funds needed for medical services to help defray the costs of bureaucratic overhead. When that failed to balance the books, the System increased its rates to insured members—and then took the final step, characteristic of all experiments in socialized medicine, by demanding that doctors lower the quality of medical and hospital care provided their patients.

Many of our doctors, familiar with the experience of socialized medicine schemes in other countries, were frankly fearful of the consequences when the System was proposed here. But once it was voted and established, they decided to cooperate in an attempt to make it successful and in the hope that it would be kept free of bureaucratic evils and shoddy procedures.

The experiment has failed.

It has failed despite the fact that members of the medical profession in San Francisco have contrib-

uted hundreds of thousands of dollars in unpaid medical services in an attempt to bolster the System during its continuing financial difficulties.

Periodically, throughout its existence, the HSS has been confronted with deficits and inability to keep its commitments. In each instance, doctors, through reduced fees, have made the necessary sacrifice to keep the System going. Hospital bills had to be paid if services were rendered. Administrative and overhead costs continued high,—and never were reduced, regardless of the System's financial condition.

But when the Health Service System attempts, as it is now doing, to place drastic restrictions on essential diagnostic procedures, and to deny its insured members adequate medical care and hospitalization, our profession would be unfaithful to its trust if it continued to support the System longer.

We have no authority to act in the matter; that power is vested in your Board and in the Board of Supervisors.

We do, however, wish to make this clear-cut statement of principle for the medical profession.

We believe that the city employees of San Francisco should be given the same freedom of choice to select the type of medical and hospital care they desire that is given employees of the State of California and the City of Los Angeles.

There is nothing compulsory about either the State employee system or the Los Angeles city employee health system. The employee (under these systems) can elect:

1. To make provision for his medical care with his own doctor.

2. To join a voluntary health insurance system with indemnity cash payments to help defray his medical and hospital bills.

3. To enroll as a member of a voluntary medical and hospital service plan which will provide him with health care in time of illness.

We want to make it clear that we are not urging the selection of any particular voluntary health insurance or medical care system. As a matter of fact, we believe the city employees should be given the right to choose between several systems, and select the one that best suits their needs.

The city employees of San Francisco are entitled to that freedom of choice—and we believe your Board should take action to see that they have it. The present intolerable conditions in the Health Service System are the inevitable outgrowth of a compulsory, bureaucratic system, and attempts to continue with the System are foredoomed to failure.

We believe and we strongly recommend that in any new program which may be established to provide city employees with prepaid medical care that third party interference between the doctor and his patient must be eliminated.

If a committee representing your Board desires to discuss the problem, our County Medical Society will be glad to cooperate with you.

BOOK REVIEWS

HISTOPATHOLOGY OF THE EAR, NOSE AND THROAT. By Andrew A. Eggston, B.S., M.D., and Dorothy Wolff, A.B., M.A., Ph.D. 1947. Illustrated. The Williams and Wilkins Company, Baltimore. Price \$18.00.

Otolaryngologists in this country have long felt the need of an authoritative book on ear, nose and throat histology and pathology. The "grapevine" indicated that something to fill this void was in the offing. Hopes were high that the work would be informative and practical.

The volume has arrived and surpasses all expectations. This monumental book of Dr. Eggston and Dr. Wolff evidences superior knowledge, meticulous thought and painstaking investigation of available literature. It is encyclopedic in character, not only for its fund of information but also for its valuable bibliography for anyone interested in further investigation of any of the numerous subjects.

The title does not do justice to the content of this 1060-page book. The authors, in addition to having satisfactorily covered the histopathology, have included information of the basic sciences which relate to the ear, nose and throat. There are excellent chapters on the comparative anatomy, embryology and physiology of the ear, the nose and accessory sinuses, the pharynx and larynx. There are beautifully illustrated chapters on the histology of the ear, nose and accessory sinuses and larynx. The histology of the larynx, while informative, is not so completely illustrated as the others. This is not mentioned as a fault, but as a suggestion for the future editions.

The chapters on histopathology cover every portion of the ear and temporal bones including the nerve and blood supply, the nose and the accessory sinuses, intracranial complications, the nasopharynx, the pharynx, and larynx. Many of the illustrations are accompanied by correlative, helpful clinical histories.

There are 505 figures, nine in color; and 28 plates, 15 in color. The colored reproductions are only fair but the illustrations, in general, are excellent. The printing and the paper are of fine quality.

This valuable contribution is highly recommended. In fact, it can be considered indispensable to the library of every otolaryngologist. Dr. Eggston and Dr. Wolff are to be congratulated on this superior book which will undoubtedly prove to be of great help to everyone interested in the problems of the ear, nose and throat.

* * *

THE TREATMENT OF DIABETES MELLITUS. By Elliott P. Joslin, A.M., M.D., Sc.D., Clinical Professor of Medicine Emeritus, Harvard Medical School, Medical Director, Baker Clinic, New England Deaconess Hospital. Eighth Edition, thoroughly revised, published November, 1946, Octavo, 861 pages, illustrated. Cloth, \$10.00. Lea & Febiger, Washington Square, Philadelphia.

The eighth edition of this standard text and reference work on diabetes should be as well received as its predecessors have been. The senior author and his collaborators have been constant contributors to progress in the understanding and treatment of diabetes mellitus, and their thorough revision of this volume has greatly enhanced its worth.

The multi-faceted aspects of diabetes are thoroughly covered in lucid fashion in well organized chapters. Appropriate references to the literature are included in such a manner as to make them readily available to the reader. The new

chapter on alloxan diabetes is excellent, and will be of particular interest to those who have not followed the recent experimental studies of this drug in the production of diabetes in animals. This edition will continue to hold its place as a leading text in its field, and deserves careful reading by every physician interested in diabetes.

* * *

INFANT NUTRITION. Jeans and Marriott. Fourth Edition, 495 pp. and 36 illustrations. Price \$6.50. The C. V. Mosby Co., St. Louis, Mo. 1947.

The first edition of this book appeared in 1930 at a time when the broad principles of nutrition were well established but had not yet thrown off the burden of empiricism in practice. Various more or less contradictory systems of feeding infants were still in vogue and a great deal of confusion undoubtedly existed. It was Marriott's purpose in writing his text to explain the basic principles in simple language and to present practical methods, based on these principles, for the feeding of normal infants and children and, similarly, to discuss the deviations from the normal that occur during disease, together with the methods of treatment which logically followed. This general plan has been followed in the successive editions. Since Marriott's death in 1936, a year after the second edition appeared, the work of revision has fallen to his former associate, Dr. P. C. Jeans, Professor of Pediatrics at the State University of Iowa, whose eminence in the field of nutrition is widely recognized, and it is proper that his name should now head the authorship of the new edition.

The work has been brought up to date in nearly all respects. The reader and prospective buyer should perhaps understand that this is a book for careful study, to be read attentively, rather than to be used merely for quick reference, since it is intended to familiarize the reader with the fundamentals which will permit him to handle pediatric problems with real understanding. In this sense it is designed for medical students and for practitioners who desire to review the subject intensively and are willing to spend the time necessary to attain that end. Indeed, the practitioner who is looking for a single mode of therapy or even to get the authors' preference may have some difficulties. Various methods of attaining a given end in, say, the use of vitamins or of electrolyte replacement solutions or of a treatment for tetany are given, and the reader will find himself confronted by a variety of choices, from which he will have to make his own selection.

A reviewer can always find items with which he disagrees or with which he can find fault, and this work is no exception. There is, for instance, what the reviewer regards as overemphasis on such things as acidified milk, which is now fast losing its popularity, and the parenteral causes of diarrhea, with only brief mention of epidemic diarrhea of the newborn, its relation to virus infection, and its special problems of prevention and treatment, but on the whole the information is ample and modern. The reader will find excellent and highly informative chapters on the various phases of metabolism, on the vitamins, on nutritional requirements, on breast and artificial feeding, on common infections and on rickets, scurvy and tetany. A final chapter on miscellaneous techniques, including transfusion and parenteral injection of fluids, is of practical value. The index is adequate.

ATLAS OF CARDIOVASCULAR DISEASES. By Irving J. Treiger, M.D., Assistant Professor of Medicine, University of Illinois, Chicago; In Charge of Cardiographic Department, Presbyterian Hospital, Chicago; Consulting Cardiologist, Municipal Tuberculosis Sanitarium, Chicago. Illustrated with 69 Plates Containing 244 Illustrations, 11 in color. 1947. The C. V. Mosby Company.

Examples of the common types of heart disease are presented by the author, with brief clinical summaries, roentgenograms, electrocardiograms, and autopsy material. The only notable omission is that of thyroid heart disease. Illustrative material is clearly reproduced, and except for indistinct descriptive lettering on some of the roentgenograms, is excellent throughout. The roentgenographic material which the author has selected is well chosen, and correlation of the ante-mortem x-rays and necropsy specimens is the best feature of the atlas.

The material presented in the text is elementary in character, and diction and syntax are such that it is not easily read, nor can the author's reasoning be readily followed. The author's statement that arteriosclerotic heart disease may be characterized by aortic insufficiency and followed by left ventricular failure on this basis, is, in the opinion of the reviewer, misleading and unsupported by evidence presented in this book. The differentiation between "congenital anomalies of the heart" and "congenital heart disease" on the basis of the presence of congestive heart failure seems confusing and to serve no useful purpose. Similar differentiation is made in regard to arteriosclerotic and hypertensive heart disease: "Hypertension with left ventricular hypertrophy as shown on the roentgenogram and electrocardiogram is not hypertensive heart disease. It may be called so, if cardiac failure is associated with and caused by hypertension."

The electrocardiograms presented include the single chest lead, CF₄, and interpretations at times are questionable in the reviewer's opinion. The assumption that low voltage in the electrocardiogram may be considered as evidence of "myocardial insufficiency" cannot be supported as sound electrocardiographic interpretation. Similarly, the use of "coronary artery disease," as an electrocardiographic diagnosis, apparently based on non-specific abnormalities of QRS and T, is hazardous and too frequently a source of error to be justified.

THE ENGRAMMES OF PSYCHIATRY. By J. M. Nielsen, M.D., F.A.C.P., and George N. Thompson, M.D. Price \$6.75. Chas. C. Thomas, Publisher.

This volume of approximately 500 pages may be recommended as a textbook for medical students, as a source of reliable information regarding psychiatry for the general practitioner, and as a most interesting document for serious study by psychiatrists and neurologists alike.

That it falls short of its objective of explaining all the phenomena of the disordered mind on the basis of experimentally demonstrated neurophysiological facts is due to no shortcomings of the authors, but rather to the unfortunate gaps in our knowledge. There remains, in spite of efforts such as are recorded in this book, a chasm between our knowledge of the brain as established by neurophysiology, and our knowledge of human behavior, most of which has come not from the laboratory but from the experience of psychiatrists in their dealings with the mentally ill.

The neurological orientation of the senior author is obvious throughout the book, which suffers not at all from this fact. It is, however, where this discipline does not produce too satisfactory an explanation for observed phenomena that the weak points of the work become obvious. Thus less than 10 per cent of the pages are devoted to the psychoneuroses, although these syndromes certainly account for the great majority of cases seen by the psychiatrist.

The authors are truly eclectic; they are willing to accept

the findings of any school so long as they do not conflict with accepted neurophysiological fact. From the standpoint of a strict adherence to any one of the many dogmatic schools of psychiatry this book probably will not be acceptable; so much to its credit. However, even the most liberal will probably take exception in some degree to the minimal consideration given by the authors to the effect of factors in the early environment of the patient on the later manifestations of his mental illness. Certainly we have learned that early environmental factors (and this reviewer does not include in this category intra-uterine impressions) are of the utmost importance, transcending in the great majority of cases those factors due to heredity and to organic changes in the nervous system.

In spite of the shortcomings listed above, this book remains a valuable contribution, and is a closer approach to a satisfactory textbook of psychiatry than any that the reviewer has had the opportunity of reading to this time.

* * *

DISEASES OF CHILDREN. Patterson & Moncrieff, Fourth Edition. Published 1947. The Williams & Wilkins Company. \$9.00.

The British textbook is interesting for comparison with our own. There are certain chapters, particularly the one on breast milk and breast feeding, that are enlightening and well worth perusal. Then, too, it is always stimulating to compare points of view from different countries, for no matter how objective scientists try to be, traditional thoughts, ideas and concepts will be perpetuated in our literature and such points of view are often best challenged by reading some one else's traditions and concepts. Aside from this, the book is not of the quality of our best pediatric texts, either in organization or content. It is the work of many authors, which leads to some duplication and always to considerable difference in quality, making the book as a text difficult to evaluate.

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NEW AND NONOFFICIAL REMEDIES. Issued under the direction and supervision of the Council on Pharmacy and Chemistry of the American Medical Association. J. E. Lippincott Co., Philadelphia.

The 1947 edition of New and Nonofficial Remedies continues the classification of accepted remedies according to action and use; the large number of new accepted drugs and the larger number of accepted preparations of established drugs has greatly enlarged the book within the last three years. Among the newly accepted remedies are Carbowax, Digoxin, Diphenhydramine Hydrochloride (Benadryl), Folic Acid, Mestilbol (Monomestrol), Merperidine Hydrochloride (Demerol, Isonipeacaine), Naphazoline Hydrochloride (Privine), Nitrofurazone (Furacin), Parenamine, Phenolized Gelatine, Streptomycin, Suramin, Thiouracil, Trimethadione (Tridione), Tuamine, and Vonedrine.

Items dropped include Ethylhydrocupreine Hydrochloride, Kephine Hydrochloride, Larocaine Hydrochloride, and Lunosol colloidal silver chloride).

Three items have been added to the list of U.S.P. preparations to be exempted from consideration, namely Ammonium Chloride, Lactate-Ringer's Solution, and Sodium-r-Lactate One-Sixth Molar.

In the 1947 edition there is a greater tendency to emphasize the non-proprietary name. A number of new non-proprietary names appear, and include Amydracaine (Alypin), Digitoxin (Digitaline), Iodopyracet (Diodrast), Methacholine (Mecholyl), Nitromersol (Metaphen), Phenylephrine (Neosynephrine), and Trimethadione (Tridione).

There are a number of changes in classification of drugs and corresponding chapter headings. Chapter I is changed from Allergenic Preparations to Agents Used Against Al-

lergy, in order to include Diphenylhydramine Hydrochloride (Benadryl); Chapter II has been changed from Analgetics and Antipyretics to Analgetics, in line with current thought that use of a drug purely as an antipyretic is unsupported by scientific evidence of its value in relieving the underlying disease. Dihydromorphinone Hydrochloride (Dilaudid) and Merperidine Hydrochloride (Demerol) are now included in this chapter, along with Salicylate, Aminopyrine, and Cinchophen. Chapter XV is now Oxytocics instead of Ecboics; the included preparations remain the same, namely those derived from ergot. Posterior Pituitary preparations remain in the chapter on Hormones. The title of Chapter XIX is expanded from Metabolic Agents to Agents Used in Metabolic Disorders. A new chapter (XXIV) is entitled Unclassified Agents, and includes preparations of gold and of iodine.

Another departure from former practice is the inclusion of all procedures for chemical or biological standardization in a separate Section B; Section A lists accepted items, with non-proprietary and proprietary names, dosage-forms, and brief descriptions of actions and uses.

New and Nonofficial Remedies is essential for the library of every physician who attempts to prescribe scientifically, and specifically for the case at hand. Its importance as a book of standards is second only to the United States Pharmacopoeia and the National Formulary. However, it is confusing to find so many preparations, distributed by a large number of drug manufacturers, as occur in some parts of the book. For example, there are seven pages devoted to procaine preparations, with 21 preparations and mixtures and 13 drug companies. Twenty-one companies offer 25 preparations of sulfadiazine, and 23 firms prepare penicillin in 58 dosage forms.

STANDARD METHODS of the Division of Laboratories and Research of the New York State Department of Health. Third Edition. By Augustus B. Wadsworth, M.D. Illustrated. Copyright 1947. The Williams & Wilkins Company, Baltimore. Price \$10.00.

This storehouse of information of public health laboratory methods has been an essential reference book in public health laboratories since the publication of the first edition in 1927. In this third edition Dr. Augustus B. Wadsworth culminates a career of 33 years of noteworthy contributions to medicine and public health as director of the laboratories of the New York State Department of Health and brings up to date the procedures and techniques developed during his one-third century as director of that laboratory. The general format of past editions is retained. Through 75 chapters detailed descriptions are given of all techniques and procedures currently employed in the highly developed and efficient New York State laboratory system. The details of procedures used in preparation of glassware and media, of calibration of instruments, etc., are particularly applicable to clinical laboratories.

This edition contains numerous changes and additions. Noteworthy among these is the method for the preparation and use of the new cardiolipin antigen in the serodiagnosis of syphilis, which has been developed in the New York State laboratories since the publication of the second edition. This information is particularly pertinent to clinical and hospital laboratories. A chapter is added on biologic assay, and numerous changes and additions are to be found in other sections. The appendix provides excerpts from the State Law and Sanitary Code relating to laboratories and gives procedures for the submission of specimens. The importance of these latter details is well recognized by all workers in public health laboratories. The chapters on preparation of biologics will probably be of lesser interest to workers in clinical laboratories.

It is replete with bibliographical references that further enhance its value.

This edition should be available for ready reference in every public health laboratory and will be found to be of value to clinical laboratories where bacteriology and serology are done.

* * *

A HANDBOOK OF COMMONLY USED DRUGS. By Michel Pijoan, M.D., Director, The Chemical Foundation Laboratory, University of Colorado, and Clark Harvey Yeager, M.D., Chief of the Medical Section, Health and Sanitation Division, Office of Inter-American Affairs, Washington, D. C. Published 1947 by Charles C. Thomas, Publishers, Springfield, Illinois. Price \$3.75.

This small book has been written for those who undertake trips in remote areas or in the field, where access to more complete texts is impossible. As such, it serves a useful purpose. Short discussions of the pharmacologic action of the common drugs and very brief data on dosage are included in the first section of the book.

The second section includes a more detailed but brief discussion of the clinical manifestations, prophylactic and definitive treatment of the tropical diseases. This section is up to date and clearly written and would be very helpful in isolated areas in the tropics. The more complete "Manual of Tropical Diseases" distributed by the National Research Council would, however, be of greater value but would not have the pharmacologic notes of the first section.

An appendix is included that gives the formulae for such miscellaneous preparations as acne ointment, DDT mixtures, etc., as well as metric equivalents, obstetrical tables, etc., that would prove useful.

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THE 1946 YEAR BOOK OF GENERAL THERAPEUTICS. Edited by Oscar W. Bethea, Ph.M., M.D., F.A.C.P. The Year Book Publishers, 304 South Dearborn Street, Chicago. Price \$3.75.

The Year Books are well known to the medical profession and the 1946 edition of Therapeutics is similar in style and content to its predecessors. Abstracts of articles dealing with therapeutics are arranged according to subject matter with occasional editorial comment. The articles are mainly from American journals and few foreign articles are reviewed. There is an index which is helpful.

The volume should prove valuable in calling attention to articles one may have missed in his reading and to give, in a general way, the scope of therapeutic thought in 1946.

One criticism that occurs to the reviewer would be the lack of sufficient interpretive opinion on the part of the editors. Some of the articles reflect different points of view on the same subject, and more comment might be helpful. Ideally, of course, the reader should look up the original papers and draw his own conclusions.

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DOCTOR, DON'T LET ME DIE. By S. S. Keiner. Published 1947. Boards; 486 pp. Meador Publishing Company, Boston, Massachusetts. 1947. Price \$3.50.

This incredible and unblushingly hysterical approach to the problem of socialized medicine comes with the benediction of Henry Sigerist who states that he actually read it. Since it is 486 pages long and composed of some rather astonishing conversational pieces, this is distinctly surprising. The book purports to be a physician's experience in practice and a fearless exposure of the flaws in medicine. The author must have been subject to large doses of the yellow school of journalism as a young man to acquire such an incredible style. The garbage collector may be kind enough to take your copy away if by any chance one should fall into your hands. However, he will need persuasion.

MEDICAL JURISPRUDENCE

MALPRACTICE; SUFFICIENCY OF EVIDENCE; QUALIFICATIONS OF PHYSICIAN TESTIFYING AS EXPERT WITNESS

PEART, BARATY and HASSARD, *San Francisco*

A decision of the California District Court of Appeal, First Appellate District (50 A.C.A. 606) presents in a malpractice action two questions of some interest to physicians and surgeons, namely, (1) what evidence is sufficient to require the presentation of a malpractice case to the jury for decision, and (2) what qualifications must a physician possess in order to be competent to testify as an expert witness in such an action.

The case involved an appeal from an order granting a new trial after judgment for the defendant in a malpractice action against a physician. The plaintiff in the action contended that her son had died as the result of the defendant's negligent treatment of a finger injured in a home accident, the son having caught his finger in the door of the bathroom, severely injuring it. In answer to the call of plaintiff, the defendant treated the wound by lifting the injured nail, squeezing tincture of merthiolate underneath it, and then packing the finger in metanix jelly and bandaging it. This treatment in substantially the same manner was continued for several days, when the boy developed symptoms of a tetanus infection. The patient, on advice of another physician, was taken to the County Hospital where an antitoxin was immediately administered. The boy did not respond to the treatment, and died the next day as a result of the infection.

After testimony on both sides had been heard, the case was submitted to the jury and a verdict was returned for the defendant. On motion of the plaintiff, the trial court granted a new trial, and on appeal from this order granting a new trial, it was necessary for the Appellate Court to pass upon the sufficiency of the evidence which the plaintiff must adduce before he is entitled to have the specific issue, of whether defendant's negligence has resulted in injury, presented to the jury, and also to pass upon the qualifications of the witness, Dr. R., who testified on behalf of the plaintiff.

The court reiterated the well-established rules of law that a physician and surgeon, in undertaking the treatment of a patient, cannot be held to guarantee the results of his treatment, but that he is bound to possess the degree of skill and learning ordinarily and usually possessed by physicians and surgeons practicing in the same locality, and is also bound to use reasonable and ordinary care and skill in administering medical and surgical treatment to the

patient. On trial of the case, it was plaintiff's contention that the defendant physician had not used reasonable and ordinary skill in caring for the injured finger and, as a result, the boy had died. More particularly, plaintiff contended that the defendant had not used ordinary and reasonable care and skill, in that he had not properly cleansed and sterilized the wound, nor had he administered tetanus antitoxin. In support of this contention, the plaintiff presented the testimony of Dr. R., a physician practicing in the county, as an expert witness. In the words of the Court:

"Dr. R., a physician and surgeon called by the plaintiff, testified that under the circumstances of the case 'the use of reasonable medical care and skill by the attending physician demanded a thorough cleaning of the sutured finger and to give the finger free access to the air to overcome any anaerobic tetanic germs.'"

The Court said that where the evidence presented tends to show that the alleged negligence resulted in an infection producing death, it presents a case for the jury. Further, the Court held that from the "expert testimony" set forth above, it could be reasonably inferred that the infection resulting in the boy's death would not have occurred if the wound had been properly cleaned and antiseptized. A new trial was granted after the decision of the Court in favor of the defendant because the trial judge, in his instructions to the jury, had limited the question of negligence to the failure of the defendant to administer tetanus antitoxin, and had precluded any consideration of the physician's alleged failure to sterilize.

The defendant had urged at the trial objections to the competency of the physician called by the plaintiff to testify as an expert witness on the question of what treatment a physician practicing in the locality would have administered in the exercise of reasonable medical care. The usual requirement is that the physician testifying be acquainted and familiar with the standards of care and skill ordinarily used and possessed in the locality in which the alleged malpractice has occurred, and that he be familiar with the usual methods of treating the particular injury or illness involved. The plaintiff's witness testified that he possessed this knowledge; and since his educational record and past experience so indicated the defendant physician could interpose no valid objection as to competency.